



Arlington Zoning Board of Appeals

Date: Tuesday, April 25, 2023
Time: 6:00 PM
Location: Conducted by remote participation
Additional Details:

Agenda Items

Administrative Items

1. **Remote Participation**

In accordance with the Governor's Order Suspending Certain Provisions of the Open Meeting Law, G. L. c. 30A, § 20 relating to the COVID-19 emergency, the Arlington Zoning Board of Appeals meetings shall be physically closed to the public to avoid group congregation until further notice. The meeting shall instead be held virtually using Zoom.

Please read Governor Baker's Executive Order Suspending Certain Provision of Open Meeting Law for more information regarding virtual public hearings and meetings: <https://www.mass.gov/doc/open-meeting-law-order-march-12-2020/download>

You are invited to a Zoom meeting.

When: Apr 25, 2023 06:00 PM Eastern Time (US and Canada)

Register in advance for this meeting:

https://town-arlington-ma-us.zoom.us/meeting/register/tZYsdu6rrT8rE9f7bj54mwwJBIPao_uqa7U

After registering, you will receive a confirmation email containing information about joining the meeting.

Hearings

2. **Docket # 3719: 1021-1025 Massachusetts Avenue**

Meeting Adjourn



Town of Arlington, Massachusetts

Remote Participation

Summary:

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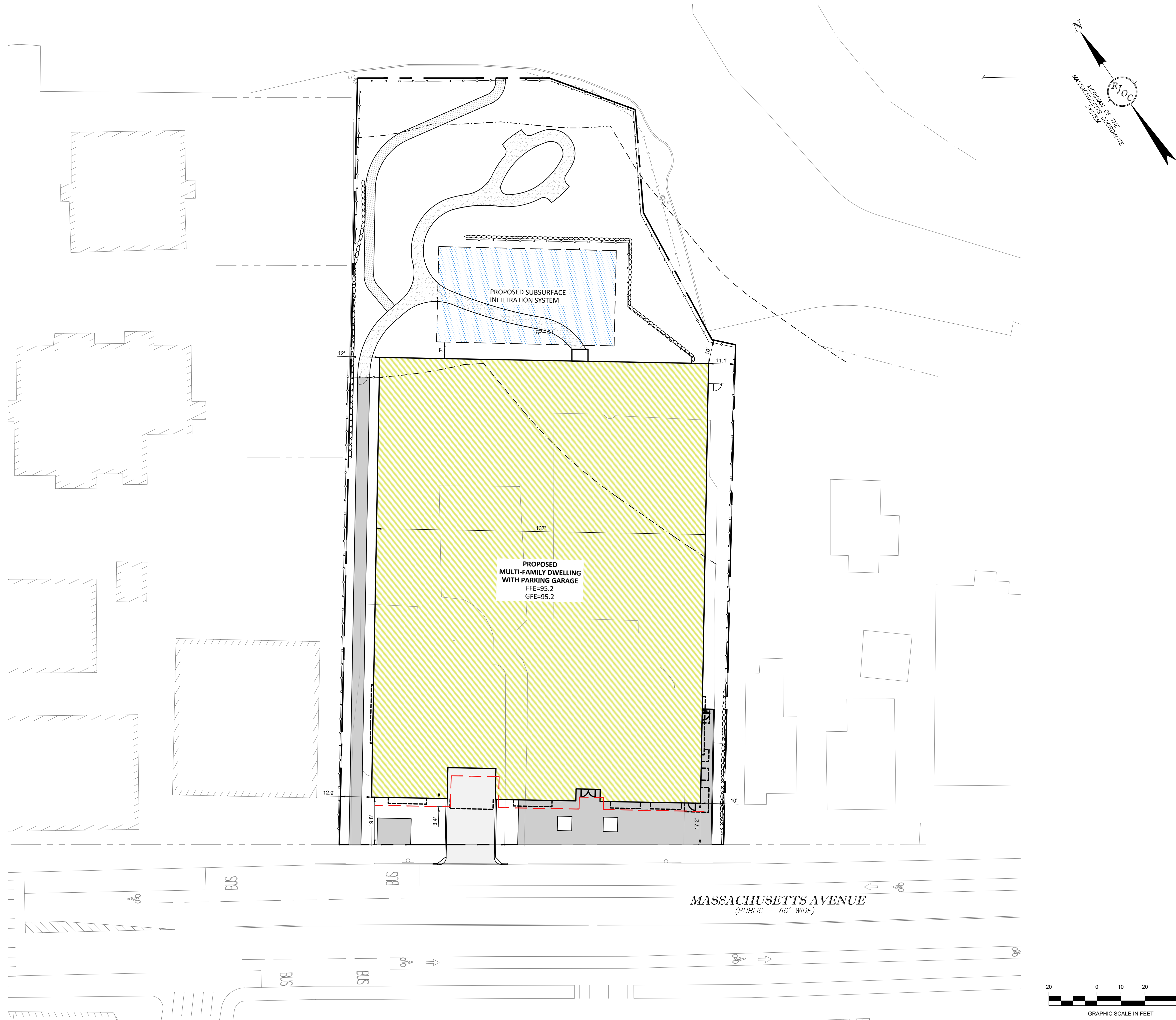


Town of Arlington, Massachusetts


Docket # 3719: 1021-1025 Massachusetts Avenue

ATTACHMENTS:

Type	File Name	Description
Reference Material	21583_CP-1_Conceptual_Plan.pdf	21583_CP-1 Conceptual Plan
Reference Material	21583_CP-2_Conceptual_Plan.pdf	21583_CP-2 Conceptual Plan
Reference Material	1025_Mass_Ave-Letter2_(2023-02-17).pdf	1025 Mass Ave-Letter2 (2023-02-17)
Reference Material	1021-1025_Mass_AveSustainability.FINAL_23.02.23.pdf	1021-1025 Mass AveSustainability.FINAL_23.02.23
Decision of Board (draft)	1021-1025_Mass_Ave_-_Draft_Comprehensive_Permit_-_23_0408.pdf	Draft Decision
Reference Material	Capacity_letter_with_photos_04102023.pdf	Sewer Capacity Letter with Photos
Reference Material	[Comparison_Result]_(#101797)_1021-1025_Mass_Ave_Draft_Comprehensive_Permit_-_23_0408_(002)_vs_(#1017971v4)_1021-1025.pdf	[Comparison Result] (#101797) 1021-1025 Mass Ave Draft Comprehensive Permit - 23_0408 (002) vs (#1017971v4) 1021-1025
Reference Material	[Comparison_Result]_(#1003734v3)_waiver_table_new_vs_(#1003734v4)_waiver_table_new.pdf	[Comparison Result] (#1003734v3) waiver table new vs (#1003734v4) waiver table new
Reference Material	[Modified_Document]_1021-1025_Mass_Ave_-_Draft_Comprehensive_Permit_-_23_0408_(002).pdf	[Modified Document] 1021-1025 Mass Ave - Draft Comprehensive Permit - 23_0408 (002)
Reference Material	[Modified_Document]_waiver_table_new.pdf	[Modified Document] waiver table new
Reference Material	1021_mass_ave_Construction_Document_rev3_kzla_stamps_2023-0414.pdf	1021 mass ave_Construction Document_rev3_kzla_stamps_2023-0414
Reference Material	1021_MassAve_List_of_Drawings_BZA_Final_230414.pdf	1021 MassAve_List_of_Drawings_BZA_Final_230414
Reference Material	1021-1025_Mass_Ave_Full_Plan_Set_04-14-23.pdf	1021-1025 Mass Ave Full Plan Set 04-14-23
Reference Material	1021-1025_Mass_Ave_Storm_Water_Analysis_04-14-23.pdf	1021-1025 Mass Ave Storm Water Analysis_04-14-23
Reference Material	1021-1025_Mass_Ave_ARCH_BZA_Final_230414.pdf	1021-1025_Mass_Ave_ARCH_BZA_Final_230414
Reference Material	2023_0317_Revised_Construction_Management_Plan_9658.pdf	2023_0317 Revised Construction Management Plan 9658

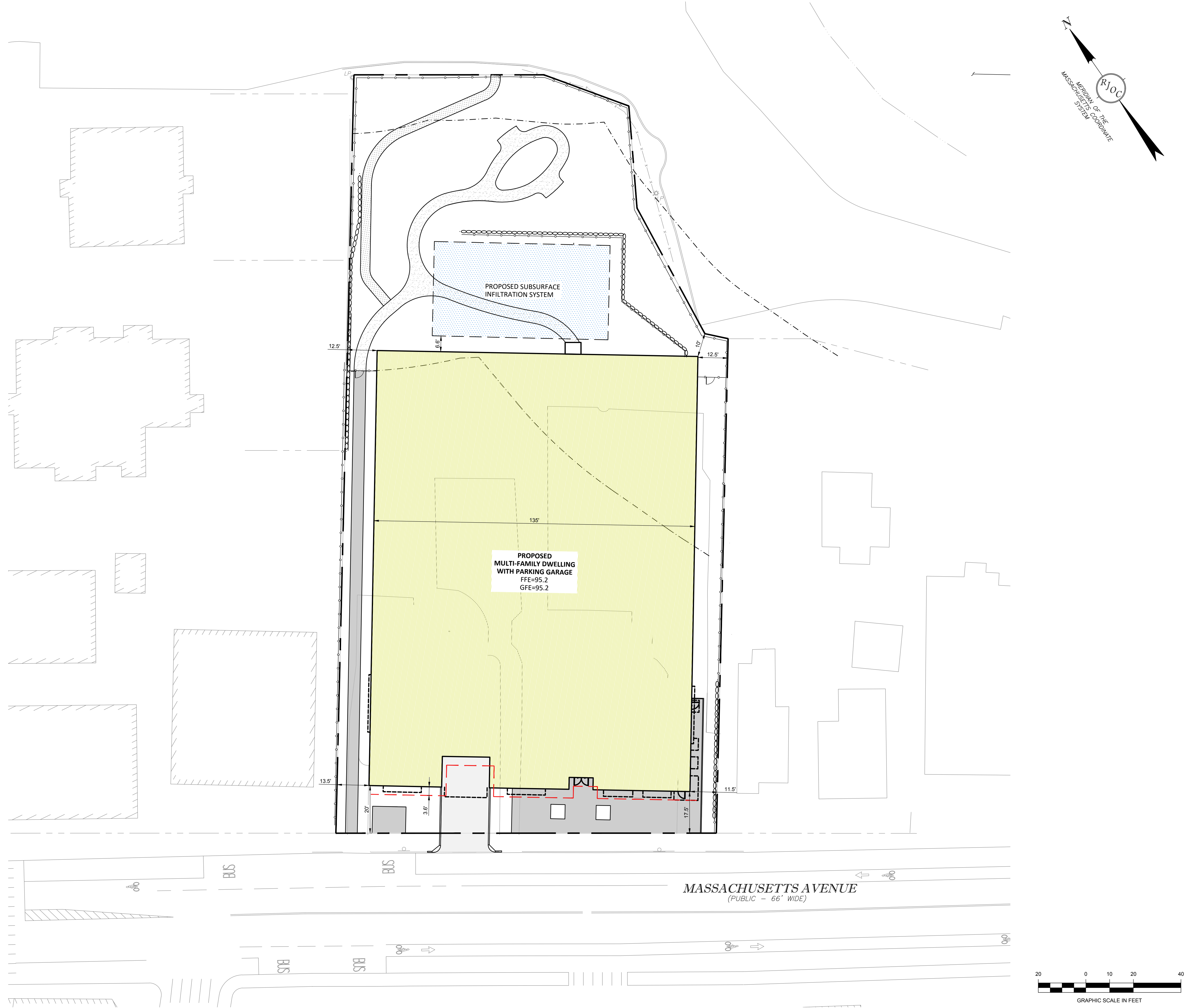


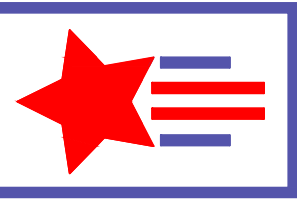
1021 & 1025 MASSACHUSETTS AVENUE	DATE: 02-02-2023
ARLINGTON, MASSACHUSETTS	PROJECT No: 21-32

[illegible]

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<p>CONCEPTUAL SITE PLAN</p> <p>LOCATED IN</p> <p>ARLINGTON, MA (MIDDLESEX COUNTY)</p> <p>PREPARED FOR</p> <p>MAJ INVESTMENT, LLC</p>	<p>SHEET</p> <p>CP-1</p>
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CONCEPTUAL SITE PLAN LOCATED IN ARLINGTON, MA (MIDDLESEX COUNTY) PREPARED FOR MAJ INVESTMENT, LLC	 PATRIOT Engineering 35 BEDFORD STREET, SUITE 4 LEXINGTON, MASSACHUSETTS 02420 T: (978) 726-2654 www.patriot-eng.com		REVISIONS		1021 & 1025 MASSACHUSETTS AVENUE ARLINGTON, MASSACHUSETTS	
			DATE	BY	DESCRIPTION	DRAWN BY: CHECKED BY:
SHEET CP-2		DATE: 02-02-2023		PROJECT No: 21-32		



February 17, 2023

Mr. Christian Klein, Chairperson
Arlington Zoning Board of Appeals
23 Maple Street
Arlington, MA 02476

Re: Tetra Tech Comment Letter 2
Comprehensive Permit (40B) Peer Review
1021-1025 Mass Ave
Arlington, Massachusetts

Dear Mr. Chairman:

The Applicant has provided revised submission materials addressing comments in our January 6, 2023 letter. This letter provides an update to those comments based on review of the Applicant's response dated January 23, 2023 and corresponding submittals including:

- A "Response to Architectural Peer Review" letter dated January 20, 2023, prepared by Harrison Mulhern Architects (HM).
- A letter dated January 23, 2023, prepared by Patriot Engineering (Patriot) responding to Tetra Tech Letter 1 comments.
- Stormwater Analysis and Calculations for 1021 & 1025 Massachusetts Avenue" dated September 9, 2022, revised January 20, 2023 (Rev 1) by Patriot.
- A plan set titled "Comprehensive Permit Plan Set" for 1021 & 1025 Massachusetts Avenue (Site Plans), dated September 19, 2022, revised January 23, 2023, prepared by Patriot.
- A "Response to Comments" letter dated January 23, 2023, prepared by LEC Environmental Consultants., Inc. (LEC).
- A "Response to Peer Review" letter dated January 23, 2023, prepared Kyle Zick Landscape Architects, Inc. (KZLA).
- A revised set of landscape plans (Sheets L1-L6) for 1021-1025 Massachusetts Avenue, Arlington MA dated September 8, 2022, revised January 20, 2023 (Rev 1) prepared by KZLA and referred to as "Recreation and Open Space Amenities".
- A "Response to Transportation Peer Review" memorandum dated January 23, 2023, prepared by Vanasse Associates Inc. (VAI). Please note, the memo available on the ZBA website does not include referenced attachments.
- Photometric Plans by Visual dated September 13, 2022, and January 23, 2023, respectively.
- A single sheet referenced as "Draft Construction and Traffic Management Plan" identified by drawing title "Utility Plan Sheet 5 of 7" dated September 19, 2022, understood to have been prepared by Maggiore.

The Revised Plans and supporting information were very responsive to our prior comments and address most of our concerns.

The following updates status of our previously identified substantive concerns.

- **Constructability** – Based on the presentation provided by the applicant, the proposed construction methodology is better understood. However, the methodology described relies heavily on use of the public way to support construction and the management plan provided does not address the range of uses required to support construction and includes potentially unsafe access and egress. It is our understanding the applicant is preparing more developed plans showing how the public way will be used and as such we will reserve comment until those plans are provided for review.
- **Emergency Access** – The Project relies on adjacent private property and the public way for emergency access. However, the applicant has indicated the building geometry and placement will be adjusted to meet setback requirements. As such, access proposed is no less than otherwise required by existing zoning. Additionally, the building will be fully sprinklered providing a higher level of protection than otherwise required by a shorter building. We still recommend the Board confirm acceptability of the proposed access with the Arlington Fire and Police Departments.
- **Stormwater Design Basis** – The stormwater design and analysis has been modified to address our prior concerns. Although there are some minor technical issues with the material submitted the revised documents substantively address our concerns.

While most of our comments have been addressed some remain and status of each is provided below. Text shown in gray represents information taken directly from previous correspondence. Text shown in black is new or updated information. Comments ending with “**Comment Resolved**” have been addressed to our satisfaction and will be removed from future correspondence. Numbering will be maintained so each issue can be tracked to its conclusion.

Comments

Preliminary Site Development Plans (Tab 06)

The Site Development Plans were well organized and readable and include most of the information needed to conduct our review. The following are comments on each sheet included in the set.

Cover Sheet

1. Site Plans typically include a “Layout and Materials Plan” which clearly describes proposed surface treatments and critical dimensions and is usually the plan most referred to during review. It would be helpful to have a similar plan included with the set which ideally also shows the proposed parking layout within the building as well as proposed setbacks and dimensional/lot coverage summaries. One is provided with the landscape plans which could ideally be consolidated with the site development plans into a single coordinated set.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

Existing Conditions Plan

2. The site includes some special topographic conditions and very close abutters. We recommend the applicant provide contours at 1-foot intervals and that contours extend at least 4 feet past the property line to help understand how grading along the property line will be influenced by the Project.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

3. Please confirm test pit information was provided by a licensed soil evaluator and provide license number if available. Please note, test pit information conflicts with that shown on the Site Demolition Plan

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

4. It would be helpful to include a datum reference comparing the Town of Arlington datum to the vertical datum used on the plan (NAVD88).

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

5. Clearly define the shape and spillover elevation of the existing depressions which currently exist in the wooded area at the rear of the property.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

6. Show structures on abutting properties on all plans.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

7. Include lane markings for Massachusetts Avenue.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

Site Demolition Plan

8. It appears the Project intends to save trees at the rear of the property. Although certainly commendable it appears several may be negatively impacted by proposed grading or will otherwise limit area likely needed to support construction. We recommend the applicant consider the area needed to support construction and revise the tree removal limits accordingly.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

9. Does the Project anticipate installation of a temporary construction fence? If so, please show its location and gates on the demolition plan along with any proposed gates.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

10. The plan shows a proposed construction entrance pad at the southeast corner of the site. However, the pad appears to extend into the proposed building footprint. Please clarify if this entrance is only to be used during demolition and if so where the entrance will be located during the balance of construction.

2023-02-17 Update – No response provided however comment is addressed in plan revisions. **Comment Resolved**

11. Provide contour labels.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

12. Correct test pit information as needed to address inconsistency with information on the Existing Conditions Plan.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

13. Is the existing fence between the subject property and 1033 Mass Ave proposed to remain or will it be removed? In either case, please note its treatment on the demolition plan

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

14. Please show anticipated sawcut/excavation limits for work within the public right of way. A sawcut line is include landscape plans but does not consider proposed utility connections.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

Grading and Drainage Plan

15. Proposed grading along the boundary with 1017 Mass. Ave creates a dam condition that channels flow but does not show how the resulting discharge is managed nor demonstrates that the flow interruption will not negatively impact the abutting property. We request the applicant explain how drainage along that boundary will be addressed so as not to negatively impact the abutting property.

2023-02-17 Update – Condition appears to remain despite response indicating it was addressed. Rather than continue this item we recommend any decision approving the Project include a condition requiring the Project to maintain existing drainage patterns at the property boundary so that no runoff is directed to abutting properties or that runoff from abutting properties is not otherwise blocked from following the flow path prior to development of this Project. **Comment Resolved**

16. Similarly, proposed grading along the boundary with 1033 Mass. Ave appears to direct site runoff from the Project toward that property when just the opposite occurs under current conditions. Applicant should address how runoff patterns will be maintained permanently and during construction to prevent negative impacts on abutting properties.

2023-02-17 Update – Condition appears to remain although less prominently. Addressed via condition noted under comment 15. **Comment Resolved**

17. The proposed garage entrance is aligned in a manner that forces vehicles to drive over an existing catchbasin. We recommend either the entrance be shifted slightly, or the catchbasin be relocated to keep it out of the path of vehicles accessing the garage.

2023-02-17 Update – Response indicates catch basin will be relocated. **Comment Resolved**

18. The plan suggests the catchbasin rim may be adjusted to accommodate the driveway but any changes to the catchbasin rim will impact gutter slope and roadway cross-slope of Mass Avenue. The entrance should be designed to maintain the existing grading of Mass Ave or otherwise plans should show the extent of change to Mass Ave.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

19. The proposed infiltration system is almost 10 feet higher than grade. Please describe how the Project intends to address potential hydrostatic loading of the wall by the infiltration system and how weeping through the wall will be avoided.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

20. The infiltration system relies on the soils beneath it to be protected from compaction to maintain its ability to infiltrate water as represented in the design. Given the proposed infiltration system is the only

unoccupied area available for construction staging, please describe how the soils below the system will be protected from compaction during construction.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

21. Please quantify the volume of excavation and disposal required to construct the proposed building foundation and describe how excess material will be managed and removed from the site.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

22. Its unclear how runoff from the site will be discharged onto the abutting property and how that flow will be conveyed across the paved surface to the stream. Please clarify how the discharge will be managed so that flow will be safely and reliably conveyed from the site to the stream. Include any channel or spillway details and threshold elevation on the plan.

2023-02-17 Update – Grading has been modified to match pre-development conditions more closely, however, the requested explanation for how the discharge will be designed or conveyed across the adjacent parking has not been provided. An overflow spillway is shown but it's not clear how it is intended to function. Our principal concern is that runoff must flow across the adjacent parking lot and redevelopment will change those patterns and intensity despite meeting applicable design standards potentially resulting an unsafe condition. Please provide a brief explanation of how the project expects to match current conditions and how it expects to manage flow across the abutting property if at all.

23. Proposed grading appears to exceed maximum allowable slopes for accessible routes. Please clarify which site amenities are accessible and identify any required accessible routes.

2023-02-17 Update – Comment appears to have been addressed as requested except the emergency access path. **Comment Resolved**

Site Utility Plan

24. This plan is similar if not the same as that included under Tab 11. Recommend it continue to be provided as part of this plan set exclusively to avoid any confusion and reduce document production.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

25. Please provide inverts of the existing sewer and proposed site discharge to confirm required minimum slopes can be met using gravity infrastructure and that main line flow is not impacted by flow from the site due to excessive drops.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

26. Will electric service come from underground lines in the street or from a drop off existing overhead lines?

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

27. Although we expect public water and sewer infrastructure would have adequate capacity to serve the Project, the Project represents an increase in demand on municipal water and sewer infrastructure above the current use and is likely much larger than would have been forecasted during original design of municipal services since it is so much larger than otherwise allowed under zoning. We recommend the applicant provide a simple memorandum or similar documentation by a licensed Massachusetts engineer

demonstrating the Project can be served adequately without impacts to existing or proposed infrastructure or its users. At a minimum the documentation should describe and quantify proposed demand, describe existing infrastructure serving the site, provide calculations demonstrating available capacity/service and describing improvements, if any, needed to town infrastructure to serve the Project. If offsite infrastructure improvements are required to serve the Project, please note them clearly in the memorandum. Documentation is requested as factual basis on which the Board can rely in determining the Project can be safely served by local infrastructure. It is not intended to suggest issues may exist.

2023-02-17 Update – Response does not address the comment. What we request is a document prepared by a qualified individual assessing and documenting that capacity is available in the existing infrastructure. Please provide the information requested ideally as a separate document to avoid overcomplication of site plans and notes. Include in your summary an explanation of why the proposed domestic supply is connected to the high-pressure fire main and not connected to the lower pressure domestic supply. Our experience suggests connecting to a 150-psi supply for domestic use may require pressure reduction.

28. Please describe how/if the Project plans to address Inflow/Infiltration removal requirements for new or expanded sewer connections.

2023-02-17 Update – Applicant requests a waiver from the requirement. We recommend the Board consult with the Town DPW prior to granting such relief. **Comment Resolved**

Site Details II

29. The details for the underground infiltration system seem to show conflicting information. System section indicates the chambers will be 45" tall but are 57" per elevations provided in the plan view above. Please clarify and confirm the model uses the same dimensions shown on the details.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

30. The sheet includes a detail for a chain link fence and no other fence detail is provided. Is it the intent to install chain link fence at the locations noted on the Grading and Drainage Plan?

2023-02-17 Update – Vinyl fence detail provided indicates the fence will be approximately 8 feet tall (despite 6-foot label on plans) and does not show the bottom gap described by the landscape architect during the public hearing. In our opinion surrounding the site with a continuous solid vinyl fence is a fairly uninspiring solution in an otherwise well-thought and creative landscape and effectively disconnects and isolates the improvements for abutters and wildlife. We recommend the Board ask the applicant to consider alternate proposals that could address their security concerns but without so completely isolating the space. It is also our opinion that isolating almost all on-site riverfront area from the adjacent brook does not comply with performance standards for work within riverfront area.

Lighting Photometric Plan (Tab 07)

31. The plan indicates several wall packs will be installed along the western building face and appear to spill light onto the abutting property creating a potential adverse impact on the lower-level windows of the abutting property. At a minimum the lighting plan should be modified to eliminate any light spill onto abutting parcels.

2023-02-17 Update – Response indicates the proposed vinyl fence will prevent spill over and revised Photometric plans show no spill over. We recommend the applicant update photometric plans to reflect setback and building geometry changes referenced in the last hearing. **Comment Resolved**

32. Is the intent of these lights to provide a lit path from the street to the rear of the site. If so, please explain how the lights will be controlled and the expected times they will be lit.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

33. The Photometric Plan was difficult to read. Please provide an electronic version that is clearer and with readable light levels.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

34. No lighting is shown for the common courtyard proposed on level 2. Please include on the plan and explain how/if this area will be lit and its anticipated hours of operation.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

Conceptual Architectural Plans (Tab 09)

The following comments are offered on civil-related items. We defer to the Town's architectural peer reviewer for all other architectural design comments.

35. The parking layout provided does not show the anticipated location of structural columns that have the potential to limit, if not preclude, use of certain spaces. Please indicate where columns are anticipated.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

36. The layout does not include provision for accessible spaces. Please indicate what spaces are intended as accessible and include required loading areas and signage.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

37. Does the Project anticipate providing charging stations for electric vehicles? If so, please note those spaces on the plan so charging station and electric vehicle locations are known in case of fire.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

38. The parking layout does not provide backing space for vehicles parked at the end of aisles. Typically, an area approx. 5' deep is provided so vehicles exiting those end spaces have an area to maneuver when exiting. If no backing area is provided, we recommend those spaces be dedicated for compact vehicles.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

39. The architectural plans do not include reference or any specific accommodation for the "Green Roof" described in the environmental impact analysis and draft wetland application. If a green roof is proposed, it should be shown on the architectural plans.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

40. The parking layout indicates “Hanging Bike Racks” at many of the parking space locations. Please provided dimensions of the proposed parking spaces and describe how/if the hanging bike storage will restrict use of any of the parking space.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

41. The plans do not indicate location of mechanical equipment (air handlers, air conditioners, etc) and no space appears to be allocated or available on the site. Please confirm all exterior mechanical equipment will be located on the roof and show where it will likely be placed.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

42. Provide a description of how excavation for the basement level will be accomplished without impacting adjacent property or the public way.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

Utility Plan (Tab 11)

43. This plan is essentially a duplicate of a similar plan included under Tab 06. No additional comments. Suggest this plan be removed as a standalone drawing to avoid confusion with similar plan at Tab 06.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

Landscape Plans L1-L7 (Tab 12)

44. Landscape Plans include duplicate or conflicting information with that included in the Preliminary Site Development Plans. We recommend the Landscape Plans be coordinated and included with the Site Plans and any duplicate content be removed.

2023-02-17 Update – No response provided however comment has been addressed in revised submittals. **Comment Resolved**

45. The Plans indicate several trees at the rear of the property will be maintained. Given the lack of available space on site to support construction and the extent of anticipated grading within that area protection of those trees does not appear possible. Please confirm if the project intends to protect those trees and if so, how it plans to accomplish its work with them in place.

2023-02-17 Update – No response provided however comment has been addressed in revised submittals. **Comment Resolved**

46. The Planting Plan indicates several new trees will be planted in the northern portion of the site. Please confirm if the Planting Plan contemplates infilling among the existing trees. If infill, please distinguish between trees designated to remain in place and those intended to be removed. Suggest any trees scheduled to be removed not be shown on the Planting Plan.

2023-02-17 Update – No response provided however comment has been addressed in revised submittals. **Comment Resolved**

47. Grades shown on the walkway appear to exceed the maximum allowed for accessible paths. Please confirm if the outdoor amenity space is intended to be accessible and if so, confirm the grading meets accessible standards.

2023-02-17 Update – No response provided however comment has been addressed in revised submittals. **Comment Resolved**

48. Please indicate which side of the Screen Fence will face the abutter.

2023-02-17 Update – No response provided. We recommend any decision approving the Project include a condition requiring any fence installed along the property boundary be installed so the finished side faces the abutting property unless otherwise specifically requested by the abutter. **Comment Resolved**

LEC Impact Analysis of the Natural and Built Environment (Tab 15)

49. The analysis indicates there are no stormwater measures to attenuate peak flows from the existing site. Although there are no measures that appear to be specifically built with that intention, there appear to be two large natural depressions in the rear of the property that we expect provide substantial peak flow mitigation and infiltration. Additional related comments are included in later section related to stormwater.

2023-02-17 Update – Comment addressed in other responses. **Comment Resolved**

50. The depressions have not been included in the analysis of pre-development conditions and as such any representation that the proposed stormwater design meets performance standards is premature in our opinion. However, we do expect the standards can be met with design changes but recommend those changes be included in any plans approved by the Board.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

51. We agree with methodology used to document the location of Mill Brook and the corresponding Riverfront Area and have no reason to believe an approved delineation would vary significantly from that shown on the plans.

2023-02-17 Update – No response required. **Comment Resolved**

52. We agree that the onsite state-regulated resource areas are limited to Riverfront Area.

2023-02-17 Update – No response required. **Comment Resolved**

Stormwater Management Report (Tab 15)

The analysis underlying the Stormwater Report includes some errors/omission which when addressed are likely to change the results. As such any representation that the Project has met peak rate attenuation requirements is premature. Our specific comments are listed below.

53. The analysis does not consider the existing wooded depressions in its pre-development runoff calculations. The depressions appear to provide significant mitigation of site runoff and excluding them from the analysis may significantly over-estimate pre-development runoff. We recommend the depressions be clearly shown on the existing conditions plans and incorporated into the pre-development runoff model and that post-development mitigation be modified accordingly.

2023-02-17 Update – Analysis has been modified as requested. There are some minor issues with the modeling but nothing that is likely to change the results. **Comment Resolved**

54. Similarly, the model does not include the post-development depression to which the infiltration system discharges nor describes how flow leaves the site. Please update the model to include the proposed depression and its anticipated outlet configuration.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

55. The model should also account for runoff originating off locus such as that flowing through the site from properties east and west.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

56. The stormwater model includes a significant lag between peak runoff from at grade portions of the site and peak runoff from the roof/infiltration system which appears to be a bit counter-intuitive given runoff from the roof would be expected to be much faster than runoff from the site. The lag creates a gap between the two peak discharges resulting in a significant benefit to the Project's post-development peak discharge rate. We request the applicant explain the lag and provide analysis results demonstrating how it was calculated.

2023-02-17 Update – Comment addressed in the revised analysis. **Comment Resolved**

57. The drainage report uses 6-minute time of concentration (Tc) for all model scenarios which doesn't accurately distinguish between runoff patterns. We understand Hydrocad model instructions recommend a 6 min. minimum Tc but would appreciate a justification for Tc used in the analysis.

2023-02-17 Update – Comment addressed in the revised analysis. **Comment Resolved**

58. The model does not include any description or consideration for the specific method of discharge from the site but rather aggregates all flows leaving the site. The work will certainly result in modification of drainage patterns to the adjacent parking lot given the changes to grading and distribution of stormwater along the property boundary. Analysis should include clearly defined outlet conditions showing how flow leaves the site and crosses the abutting property under each storm.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

59. There appears to be no stormwater collection system serving the adjacent parking lot. As such all flow leaving the site will travel across a parking lot potentially creating an unsafe condition. We recommend the applicant clearly describe how flow leaving their site will traverse the neighboring parking lot and confirm the abutter accepts those changes.

2023-02-17 Update – Comment addressed in revised analysis. **Comment Resolved**

60. The analysis does not appear to take credit for any mitigation due to implementation of a green roof as described in the LEC reports/applications. As such, stormwater performance represented in the analysis should not be impacted if the green roof was not constructed. We would still appreciate clarification of the project's intentions and commitment to installing and maintaining a green roof.

2023-02-17 Update – No response provided however based on other responses it appears the only “green roof” element is the planting in the courtyard which is relatively modest and required no special consideration as it relates to stormwater management. **Comment Resolved.**

Transportation Impact Assessment (Tab 16)

The TIAS has generally been prepared in accordance with industry standards. We agree with the methodology used to estimate traffic volume and its distribution and consider added volume from the Project is relatively small and generally insignificant in comparison to current roadway volumes. The following comments address our non-capacity related issues.

61. Town guidelines recommend traffic studies include intersections within 1,000 feet of the development site. The traffic study did not include all intersections within 1,000 feet. However, additional intersection capacity analyses beyond those evaluated in the traffic study is not warranted since Project traffic is less than 2% of existing volume. Such a nominal increase is not anticipated to materially change peak hour levels of service at intersections not included in the study.

2023-02-17 Update – No response required. **Comment Resolved**

62. The building program shown in the traffic study varies slightly from that shown on architectural plans and site plans. The discrepancies are not considered material but should be addressed in future submittals to the extent possible.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

63. The traffic study indicates that nine surface parking spaces are proposed in the rear of the site. However, the site plan does not show any surface parking on the site. Please confirm proposed parking layout and supply.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

64. The traffic study included a crash analysis of the study intersections. However, crash data for the Massachusetts Avenue/Menotomy Road intersection and the crash rate calculations for all study intersections were not included in the Appendix. Please provide.

2023-02-17 Update – Referenced attachment not provided.

65. No documentation is provided to support the proposed parking space to unit ratio. We recommend the Board request the applicant to provide a simple justification for the ratio proposed.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

66. Based on the site plan, emergency vehicle access will be limited to the front (Massachusetts Avenue) side of the building. Tetra Tech recommends that the Applicant describe anticipated emergency vehicle access at the site and explore the feasibility of expanding emergency vehicle access to the sides and rear of the property. The Applicant should review the site plan with the Arlington Fire Department to ensure accommodations provided are acceptable to the Fire Department.

2023-02-17 Update – Applicant has provided a plan showing staging location for emergency vehicles indicating a reliance on access through abutting parcels over which the Project has no control. As such we recommend any decision approving the Project include a condition requiring the Project to obtain

written approval from the Arlington Fire Chief or his/her designated representative of the proposed building access prior to issuance of a building permit. **Comment Resolved**

67. It's unclear how delivery/trash pickup/moving trucks will be accommodated. We recommend the Board request the applicant describe how these activities will be accommodated and provide AutoTurn analysis, if needed, to confirm services/vehicles can circulate without impeding on-street parking, bicycle lane operations or site access/circulation.

2023-02-17 Update – Response indicates deliveries/trash pickup/move in will be accommodated in the off-street driveway. In our opinion this approach is impractical and potentially dangerous as it requires backing out onto Massachusetts Avenue. We recommend the Applicant consider requesting a portion of the front of the site be designated as a loading zone for the Project and striped and signed accordingly or provide a means of turning a delivery vehicle in the garage.

68. We agree with the TIAS's suggested site access improvements to provide a Stop bar and sign at the site driveway approach to Massachusetts Avenue. Tetra Tech recommends that all proposed traffic signage and pavement markings for the project be MUTCD-compliant.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

69. The traffic study assumed 20% of residents will use non-vehicle modes of travel to/from the site. Based largely on its MBTA access and the bus stop on the north side of Massachusetts Avenue. We recommend the Applicant coordinate with the Town and the MBTA to evaluate the feasibility and appropriateness of providing a bus shelter to encourage transit usage to/from the site.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

70. The Applicant commits to providing bike storage based on the architectural plans. The proposed bike rack locations should be shown on the site plans. Tetra Tech recommends that the Applicant consider providing a mix of indoor, secured long-term bike parking for residents and outdoor, short-term bike parking for guests and retail customers. The bike mitigation should be developed in accordance with the Town's Bicycle Parking Guidelines.

2023-02-17 Update – Comment addressed as requested. We recommend any decision approving the Project include a condition requiring the Project to comply with Town's Bicycle Parking Guidelines. **Comment Resolved**

71. The traffic study indicates that adequate ISD would be provided at the proposed site driveway on Massachusetts Avenue. However, the available ISD would be restricted when taking on-street parking into account. Tetra Tech recommends that the Applicant work with the Town to evaluate the feasibility of providing a painted buffer (on-street parking restriction) between the proposed driveway and the beginning of on-street parking to the south of the driveway to enhance sight lines.

2023-02-17 Update – Comment addressed as requested. See comment 67. **Comment Resolved**

72. As part of the project, a new driveway will be constructed for vehicles entering/exiting the proposed covered parking area. This new driveway will be located within approximately 15 feet of the existing bus lane. The minimum length for an on-street parking space (end space) is 20 feet. Therefore, Tetra Tech recommends the Applicant prepare a restriping plan to extend the end of the bus lane or provide hatched pavement markings to provide a no parking zone between the bus lane and the proposed driveway, subject to Town review and approval. The plan should also show the proposed restriping for the on-street parking to the south of the driveway.

2023-02-17 Update – Response indicates applicant will work with the Town to develop an appropriate solution but has not proposed a plan to remedy. We recommend the Board request the applicant provide a plan showing intended modification or encumbrance of the public way during construction and post development so the Board can understand what is being proposed and can condition an approval accordingly.

73. Approximately 425 feet south of the site, a midblock crossing is provided across Massachusetts Avenue. Tetra Tech recommends that the Applicant assess conditions at this location (i.e., pavement striping, wheelchair ramp design, crosswalk width and pavement markings, traffic control, sight lines, etc.) and determine if any improvements are warranted to enhance safety.

2023-02-17 Update – Comment addressed as requested. Response includes a Project commitment to improve the crossing and we recommend any decision approving the Project include a condition requiring the Project to construct the improvements recommended by VAI prior to issuing a certificate of occupancy. **Comment Resolved**

74. We recommend the Applicant describe anticipated delivery and moving truck operations and confirm that these services/vehicles can be adequately accommodated on-site without impeding site access, circulation and/or parking.

2023-02-17 Update – Response suggests the street will be used for delivery and move ins which conflicts with the response provided to comment 67. This issue will be consolidated with comment 67. **Comment Resolved**

LEC Bylaw Notice of Intent Application (Tab 19)

75. The Arlington Conservation Commission maintains its review responsibility under the state wetlands regulations (310 CMR 10) which includes strict performance standards for work within Riverfront Area and compliance with Massachusetts Stormwater Management Standards and Handbook. Given the Commission maintains review responsibility under state regulations we recommend the Applicant request, and the Board consider, waiving filing requirements under the local bylaw to avoid the Board having to conduct a parallel review with the Commission. If the Commission is concerned that waiving the local bylaw removes a needed control, they can request the Board include it as a condition in their decision.

2023-02-17 Update – No response required. **Comment Resolved**

76. The application asserts no work is proposed within an Adjacent Upland Resource Area however it is our understanding the Adjacent Upland Resource Area associated with the Mill Brook Bank would extend into the site (generally coincides with the 0-100' riparian zone) and work is proposed within that area.

2023-02-17 Update – Comment addressed as requested. **Comment Resolved**

77. The proposed construction period stormwater control measures are relatively sparse and include a single line of staked compost filter tube, a single catch basin filter and a proposed construction entrance that can logically only serve the demolition phase of the project given it is shown in a location within the proposed building footprint and in an area of deeper excavation needed to construct the basement level. In our opinion the proposed measures shown will not be sufficient to prevent sediment from leaving the site. We recommend the Board request the applicant to describe how it plans to execute construction and how proposed erosion control measures will be modified to serve each phase of construction. For example, we see no way the Project can be constructed using exclusively the entrance shown on the plans and

that a rear entrance is likely required. We expect the rear of the site will be the most heavily used during construction given the lack of any available space between the building, the abutting properties, and the street yet no accommodations are shown at the rear of the site to manage construction traffic, soil stockpiles or construction parking/laydown. Without careful planning of construction activity and robust erosion and sedimentation controls there is a significant potential for impact to Mill Brook.

2023-02-17 Update – No response provided however revised plans include the bulk of information requested. **Comment Resolved**

February 17, 2023 Comments

78. We understand plans are currently being revised to further address comments and input received during the public hearings. To the extent possible all drawings should be coordinated so as not to include conflicting information.

79. We recommend future plan revisions not include “revision clouds” as those plans may be referenced in a decision and clouds compromise plan readability and content. Clouding changes is not necessary for our review. Please be advised revised submittals should still be noted in the revision box in the title block.

We appreciate the effort by the applicant and their design team to address our comments and look forward to seeing revised plans and supplemental information on use of the public way. If you have any questions or comments, please feel free to contact me at (508) 786-2230.

Very truly yours,



Sean P. Reardon, P.E.
Vice President

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1021/1025 Massachusetts Avenue

Project Sustainability

February 22, 2023

The project will be designed to include the following sustainability related features:

LOCATION and TRANSPORTATION

- Project located in area with public transportation via bus lines serving the commuter rail at Porter Square and the red line at Harvard Station. There is a bus stop at the site and one across street.
- Project located within ½ mile walk to a full array of community resources, such as banking, dining and shopping.
- Site is currently developed and has been significantly degraded over the years.
- 5 story building height allows for greater density within building footprints
- Bicycle facilities are provided inside the building for residents, with exterior bike racks provided for visitors.
- Parking space counts have been reduced to the extent possible with all of the parking located within the building, limiting pervious area and heat island effect.
- Eleven EV charging stations will be provided, with provision for future EV stations by way of conduit provided within the parking garage

SUSTAINABLE SITES

- Project has a construction activity pollution prevention plan where an erosion and sedimentation plan will be followed (SWPPP)
- Significant amounts of contiguous open space are provided by way of the planted area at the north end of the site
- Stormwater runoff will be managed per state regulations/best practices as opposed to the existing condition with offsite untreated flows
- Complete new landscape plan featuring native/non-invasive/drought tolerant species is proposed including 54 deciduous trees, 60 tree seedlings, and 11 evergreen trees
- The planted areas will provide Improved habitat for birds and small animals
- The outdoor plaza at the second level will provide additional outdoor living area
- Green roof at the plaza area will reduce the heat island effect

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- White roofing (solar reflective index equal to or great than 82) at flat roof sections, combined with in-building parking will serve to reduce heat island effect
- All exterior lighting will be dark sky compliant and designed not to spill over onto adjacent sites

WATER EFFICIENCY

- Drought tolerant and native shrub and tree species will be watered by hand until established.
- Lawn areas planted with a native grass mix will receive a nominal amount of irrigation.
- Indoor water use will be limited to extent possible through use of low flow toilets and plumbing fixtures which will be WaterSense labeled
- Residents domestic hot water use will be individually metered, supporting water efficiency efforts by monitoring and benchmarking water usage over time

ENERGY and ATMOSPHERE

- Building design will meet the revised Massachusetts Stretch Energy Code (225CMR 23.00) requirements, with minimum R value as follows:

Roof: R-49

Walls: R-23.8 (5 + 19)

Foundation Perimeter below grade: R-10

Foundation Perimeter above grade: R-13.3

Slabs: R-10

- Building will have a continuous exterior insulation application
- Building will be designed to have a continuous air barrier and to limit thermal bridging
- Building roof areas will be structured to be solar-ready with conduit provided from an enlarged electrical room designed to accommodate solar equipment
- Motion sensor lighting will be installed in common hallways and stairways
- Units and common spaces will be heated and cooled by a high efficiency heat pump systems
- Units will have individual control and metering and be designed to be compartmentalized
- Unit appliances will be energy star rated
- Units design will be evaluated by a HERS rater, including blower door testing
- Units will be energy usage commissioned prior to occupancy (ASHRAE Standard 90.1-2010)

MATERIALS and RESOURCES

- Construction waste will be sorted to maximize level of recycling

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- Construction materials to be sourced locally to the extent possible
- Tile backer board to be non-paper faced

INDOOR ENVIRONMENTAL QUALITY

- No smoking will be allowed on site or in the building common areas
- All materials used will be no or low VOC emittance with a limited use of carpet
- Units and common areas to be served with energy recovery ventilation
- Project will employ continuously operating exhaust fans at bathrooms to minimize potential moisture problems
- All clothes dryers will be exhausted directly to the exterior
- Interior lighting to be low energy LED type
- All units will have a carbon monoxide detectors
- Window will be sized take advantage of daylight
- Unit wall and floor assembly separations will be acoustically engineered for privacy

END

TOWN OF ARLINGTON

Zoning Board of Appeals

730 Massachusetts Avenue

Arlington, MA 02476

DECISION ON APPLICATION FOR COMPREHENSIVE PERMIT

G.L. c. 40B, §§ 20-23

APPLICANT: 1025 Mass Ave, LLC (“Applicant”)

PROPERTY: 1021 and 1025 Massachusetts Avenue, Arlington, MA (the “Property”)

ASSESSORS’ MAP: Assessors Parcel 055.0-0002-0019.0 and 055.0-0002-0020.0

DEVELOPMENT NAME: The Residences at Mill Brook

DATE: April __, 2023

I. PROCEDURAL HISTORY

1. An application for a Comprehensive Permit was received by the Town of Arlington Zoning Board of Appeals (“Board”) on or about September 20, 2022 (“Application”). The Application proposes the development of fifty (50) units of home ownership housing with associated parking in a single structure located at the Property (the “Project”).
2. The Board’s public hearing on the Application was duly opened on December __, 2022 (after the Applicant granted an extension of the thirty-day period to open the public hearing).
3. The Project is located on the Property, which is located at 1021-1025 Massachusetts Avenue, Arlington, Massachusetts. The Property is located on approximately 1.08 acres of land.
4. The Property is located in the Industrial (I) Zoning District. Nearby uses consist of commercial and office uses.
5. The Property consists of approximately 1.08 +/- acres. The Property currently contains two (2) existing structures on footprints comprising ___% lot coverage of the Property. Additionally, the Property contains significant pavement,

covering approximately ____% of the Property, for a current total impervious area of ____%. No stormwater management structures are present on the Property to attenuate runoff from the existing impervious area.

6. The Applicant provided various materials, reports, studies, and revised plans throughout the course of the public hearing on the Application.
7. The Applicant proposes the fifty (50) home ownership condominium units in a single structure, of which a minimum of twenty-five percent (25%) will be restricted as affordable units as determined by the Subsidizing Agency. The Applicant also proposes approximately 935 s.f. of ground-level commercial space.
8. During the public hearing, the Applicant was assisted primarily by its principal Matthew Maggiore, Jacquelyn Maggiore and David Mann, of Maggiore Construction, its counsel Paul Feldman, Esq., of Davis Malm, its civil engineer Michael J. Novak, P.E., of Patriot Engineering, LLC, its architect Chris Mulhern, AIA, of Harrison Mulhern Architects, its environmental consultant Richard A. Kirby, of LEC Environmental Consultants, Inc., and its traffic engineer Shaun P. Kelly, of Vanasse & Associates, Inc.
9. The Board utilized the services of Sean Reardon, P.E., of BETA Group, Inc., and Cliff Boehmer of Davis Square Architects for design review. The Board also utilized the services of Town Counsel Douglas Heim, Esq., Planning Director Claire Ricker, and other town staff. The Board was also represented during the course of the hearing by Paul Haverty, Esq., of Blatman, Bobrowski, Haverty & Silverstein, LLC as its Chapter 40B technical consultant through a grant from the Massachusetts Housing Partnership.
10. During the public hearing, there was significant public input. The Board heard input from abutters and other interested persons throughout the hearing process. The Board also heard significant input from town departments, including the Conservation Commission, the Department of Planning and Community Development, and the Transportation Advisory Committee.

II. JURISDICTIONAL FINDINGS

11. The Applicant has demonstrated its eligibility to submit an application for a Comprehensive Permit to the Board, and the development fulfills the minimum project eligibility requirements set forth in 760 CMR 56.04(1) as follows:
 - a. The Applicant is a limited liability company, and has indicated in its application that it will conform to the limited dividend requirements of G. L. 40B, §§ 20-23, thus establishing it is a limited dividend entity. The

Applicant has a principal address of 13 Wheeling, Avenue, Woburn, MA 01801.

- b. The Applicant has received a written determination of Project Eligibility from MassHousing dated August 19, 2022 under the New England Fund Program, a copy of which was provided to the Board with the original application.
 - c. The Applicant provided a copy of Purchase and Sale Agreement between 1021 Massachusetts Aveue, LLC and MAJ Investment, LLC (a related entity of 1025 Mass Ave, LLC). The Subsidizing Agency determined that the Applicant has site control to pursue a comprehensive permit a part of its Project Eligibility Letter. Pursuant to 760 CMR 56.04(6), this determination is conclusive as to the issue of site control.
 - d. The Applicant has agreed to execute a Regulatory Agreement that limits its annual distributions in accordance with G. L. c. 40B and the regulations (760 CMR 56.00 et seq.) and guidelines adopted thereunder by DHCD.
12. The Town of Arlington (“Town”) did not meet the statutory minima set forth in G. L. c. 40B, § 20 or 760 CMR 56.03(3) to 56.03(7) at the time the original application was filed.
- a. At the time of the filing of the Application, the number of low or moderate income housing units in the Town constituted ____% of the total year-round housing units in the Town, based on the most recent publicly available copy of the DHCD Subsidized Housing Inventory, dated December 21, 2020. Thus, the Town does not meet the ten percent (10%) statutory minimum.
 - b. In another pending comprehensive permit application, the Board has asserted a claim that there are existing affordable housing units that are on sites that comprise more than one and one half percent (1.5%) of the total land area of the Town that is zoned for residential, commercial or industrial use (excluding land owned by the United States, the Commonwealth of Massachusetts, or any political subdivision thereof). The Board timely asserted this claim pursuant to 760 CMR 56.03(8). The Applicant appealed this claim to the Department of Housing and Community Development, which issued a decision dated November 17, 2016, reversing the Board’ Safe Harbor determination. The Board appealed this decision to the Housing Appeals Committee. On October 15, 2019, the Housing Appeals Committee upheld the decision of the

Department of Housing and Community Development. The Board ultimately issued a decision approving a comprehensive permit for this development, which is currently under appeal. Without waiving its rights on the other pending application, the Board did not provide the Applicant of written notice of this safe harbor pursuant to 760 CMR 56.03(8) on this application.

- c. The granting of this Comprehensive Permit will not result in the commencement of construction of low or moderate income housing units on a site comprising more than three tenths of one percent of land area in the Town or ten acres, whichever is larger, zoned for residential, commercial or industrial uses (excluding land owned by the United States, the Commonwealth of Massachusetts or any political subdivision thereof) in any one calendar year.
- d. The Town has an approved Housing Production Plan pursuant to 760 CMR 56.03(4), but is not currently within (or eligible for) certification.
- e. The Town has not achieved recent progress toward its housing unit minimum pursuant to 760 CMR 56.03(5).
- f. The Project as originally submitted does not constitute a Large Project pursuant to 760 CMR 56.03(6).
- g. The Applicant's Comprehensive Permit Application does not constitute a Related Application pursuant to 760 CMR 56.03(7).

III. FACTUAL FINDINGS

Location of Project

- 13. The Project is located on a previously developed 1.08 acre parcel of land located at 1021-1025 Massachusetts Avenue. A portion of the Property is located within the 200-foot riverfront area for Mill Brook. The Property is located within the Industrial (I) Zoning District.
- 14. In addition to being located next to various commercial uses, the Project also abuts .

Wetlands

- 15. The Applicant proposes work within the outer two hundred foot (200') buffer to the riverfront area associated with Mill Brook. This work includes construction

of portions of the proposed structure, the removal of trees, the installation of erosion controls, grading, and installation of a retaining wall, paths, a bench and fencing; the installation of a subsurface infiltration system and the creation of an urban park. The work within the outer two hundred foot (200') buffer zone to the riverfront will also include 2,514 square feet of existing paved parking area.

16. The Project also proposes limited work within the inner one hundred foot (100') buffer zone to Mill Brook, including grading and erosion control.
17. The Project will be required to obtain an Order of Conditions from the Arlington Conservation Commission pursuant to the Wetlands Protection Act.
18. The Project proposed ____ square feet of work within the AURA.
19. The Project is in compliance with Section 25D of the Arlington Regulations for Wetlands Protection because the Project proposes mitigation to increase the pervious area within the 0'-25' AURA, which is considered an enhancement of the resource area.
20. The Applicant submitted an Impact Analysis on the Natural and Built Environment prepared by LEC Environmental Consultants, Inc.
21. The Applicant utilized NOAA 14+ data for the stormwater management calculations, consistent with current best practices.

The Transportation Network

22. Primary access to the Project will be from Massachusetts Avenue.
23. The Project will provide fifty (50) parking spaces for the residential units and commercial space.
24. The Project will provide ____ bicycle parking spots.

Civil Engineering, Site Design, and Stormwater Impact

25. The Board engaged in review of potential civil engineering, site design, traffic, stormwater and floodplain impacts of the Project.
26. The Project will connect to the Arlington municipal water and sewer systems.
27. Approximately ____% of the site is currently covered by impervious surface. The Project will _____ the amount of the site covered by impervious surface

- to ____% of the Property. The Board finds that reduction in the total amount of impervious surface is a benefit to the Property.
28. Stormwater management has been designed to be in compliance with the Mass Stormwater management standards in accordance with 310 CMR 10.05(6)(k) through (q) and defined in detail in the MassDEP Stormwater Management Handbook. The system incorporates best management practices (BMP's) to facilitate total suspended solids (TSS) removal, infiltration and detention of stormwater flows.
29. The Project, as conditioned herein, will address the lack of affordable home ownership units in the Town.
30. The Board finds that the conditions imposed in Section IV of this Decision are necessary in order to address Local Concerns. The Board finds that such conditions will not render the project uneconomic. To the extent that such conditions may render the project uneconomic (as defined in 760 CMR 56.02), the Board finds that the Local Concerns outweigh the potential benefits of the proposed affordable units.
31. The Board finds that granting certain waivers from local by-laws and regulations is acceptable even though granting waivers may have an adverse impact on Local Concerns.
32. The Board acknowledges concerns raised by abutters and other interested parties about the Project's potential incompatibility with nearby uses, particularly relating to traffic and parking impacts. The Board has addressed these concerns by the imposition of appropriate conditions. The Board further finds that conditions detailed below appropriately address these matters of local concern in a manner that outweighs the regional need for affordable housing. The Board finds that the conditions imposed below address local and regional housing needs while properly protecting valid issues of local concern.
33. The Board finds that the construction of the Project, as conditioned, will be consistent with local needs.

IV. CONDITIONS

A. **General**

- A.1 The holder of this Comprehensive Permit is 1025 Mass Ave, LLC. The Property is defined as the property located at 1021 and 1025 Massachusetts Avenue, Arlington, Massachusetts, shown on a plan entitled "1021 and 1025

Massachusetts Avenue, Comprehensive Permit Plan Set, Located in Arlington, MA” dated September 19, 2022, with revisions through _____, prepared by Patriot Engineering. The Project is defined as all features shown on the plans listed below in Condition A.2 or as otherwise required by this Comprehensive Permit.

- A.2 Except as may be provided for in the following Conditions or in the Final Plans referenced below, the Project shall be constructed substantially in conformance with the plans and drawings listed below in this Condition A.2, which for purposes of this Comprehensive Permit shall be considered the Approved Plans for the Project (“Approved Plans”). Minor changes to the Approved Plans (e.g., changes that do not materially affect the location of, or increase the height or massing of the structures, or increase the number of units contained in the residential buildings) shall be submitted to the Director of Planning and Community Development who shall have the authority to approve such changes as immaterial changes. If the Director of Planning and Community Development determines that the proposed changes do not conform to the requirements of this Comprehensive Permit, they shall so notify the Applicant and the Applicant shall either bring the plans into conformance with this Decision or seek modification in accordance with 760 CMR 56.05(11). The Approved Plans consist of the following plan set from Patriot Engineering, Inc., and Harrison Mulhern Architects:

“1021 and 1025 Massachusetts Avenue, Comprehensive Permit Plan Set, (1021 Assessors Map 55, Lot 19) (1025 Assessors Map 55, Lot 20) Comprehensive Permit Plan Set, (To Accompany a Zoning Board of Appeals Application) Located in Arlington, MA dated September 19, 2022”, with revisions through _____, prepared by Patriot Engineering, and consisting of the following sheets:

Sheet 1	Cover Sheet
Sheet 2	Existing Conditions Plan
Sheet 3	Site Demolition Plan
Sheet 4	Site Grading and Utility Plan
Sheet 5	Site Utility Plan
Sheet 6	Site Details – I
Sheet 7	Site Details - II

“1021-1025 Massachusetts Avenue, Arlington, MA” dated September 19, 2022 prepared by Harrison Mulhern Architects, with revisions through _____, 2021, and consisting of the following sheets:

A 1.0 Basement Floor Plan

- A 1.1 Ground Floor Plan
- A 1.2 Second Floor Plan
- A.1.3 Third Floor Plan
- A 1.4 Fourth Floor Plan
- A 1.5 Fifth Floor Plan
- A 2.1 Front Elevation/Rear Elevation
- A 2.2 Right Elevation/Left Elevation
- A 2.3 Section Elevation
- A 2.4 Section Elevation
- A 2.5 Street Elevation
- A 3.1 View From Mass. Ave
- A 3.2 Aerial View

Lighting details are contained in the plan entitled “_____”
consisting of the following sheet:

Utility Plan entitled “Site Utility Plan details are contained in the plan entitled
“Proposed Site Plan Located in Arlington, MA (Middlesex County) prepared for
MAJ Investment, LLC” dated September 16, 2022, prepared by Patriot
Engineering.

- A.3 The Applicant shall be a Limited Dividend Entity as required by Chapter 40B and its successors and assigns shall comply with the limited dividend and other applicable requirements of Chapter 40B and the regulations adopted thereunder.
- A.4 The Project shall consist of not more than fifty (50) home ownership condominium units located in a single structure, and other related residential amenities, all as shown on the Approved Plans. The Project shall consist of no more than _____ (____) bedrooms. The Project shall also consist of approximately 965 square feet of commercial space on the ground floor.
- A.5 There shall be fifty (50) vehicle parking spaces (inclusive of required handicap spaces).

- A.6 Pursuant to the revised Waiver List submitted to the Board and attached hereto as Exhibit A, the Applicant has requested, and the Board has granted, those waivers from the Arlington Zoning Bylaw and other local by-laws and regulations as specified therein. No waivers are granted from requirements that are beyond the purview of G.L. c. 40B, §§ 20-23. No waiver of permit or inspection fees has been granted. Any subsequent revision to the Approved Plans, including but not limited to revisions in the Final Plans, referenced below, that requires additional or more expansive waivers of any local by-laws or regulations, must be approved by the Board in accordance with 760 CMR 56.05(11).
- A.7 Except as otherwise specifically provided herein, where this Decision provides for the submission of plans or other documents for approval by the Director of Planning and Community Development or other Town Departments, the Director of Planning and Community Development or applicable Department Head will use reasonable efforts to review and provide a written response within forty-five (45) days following submission. For submissions that require assistance from an outside consultant, as determined by the Director of Planning and Community Development or applicable Department Head, the thirty-day time period shall not begin until the consultant's fee has been fully funded by the Applicant. Should forty-five (45) days elapse without a response as aforesaid, said plans or documents shall be deemed approved.
- A.8 This Comprehensive Permit may be subsequently assigned or transferred pursuant to 760 CMR 56.05(12)(b). The pledging of the Property as security under any conventional loan financing terms as set forth in the financing entity's Loan Documents or any foreclosure sale pursuant to the same shall not constitute an assignment or transfer under this paragraph.
- A.9 The provisions of this Comprehensive Permit Decision and Conditions shall be binding upon the successors and assigns of the Applicant, and the obligations shall run with the land. In the event that the Applicant sells, transfers, or assigns its interest in the development, this Comprehensive Permit shall be binding upon the purchaser, transferee, or assignee and any successor purchasers, transferees or assignees. The applicable limited dividend restrictions shall apply to the owner of the project regardless of sale, transfer, or assignment of the project.
- A.10 The sidewalks, driveways, roads, utilities, drainage systems, and all other on-site infrastructure shown on the Approved Plans as serving the Project shall remain private in perpetuity, and the Town shall not have, now or in the future, any legal responsibility for the operation or maintenance of the infrastructure, including but not limited to snow removal, landscape maintenance, and hydrant maintenance. In this regard, the proposed site access ways within the Project shall not be dedicated to or accepted by the Town.

- A.11 Unless otherwise indicated herein, the Board may designate an agent to review and approve matters on the Board's behalf subsequent to this Decision.

B. Affordability

- B.1 Except as may otherwise be allowed by the Subsidizing Agency (MassHousing or other Subsidizing Agency), pursuant to the applicable subsidy program, a minimum of twenty-five percent (25%) or thirteen (13) of the home ownership shall be reserved for income-eligible households, meaning that they shall be sold to and occupied by households, as proposed by the Applicant, whose income (adjusted for household size) is not more than eighty percent (80%) of the Area Median Income ("AMI"), as determined by the United States Department of Housing and Urban Development ("HUD") and the Subsidizing Agency (the "Affordable Units"). Affordable Units shall be dispersed throughout the Project in accordance with the guidelines of the Subsidizing Agency. The Board acknowledges that affordable unit location is an issue within the exclusive jurisdiction of the Subsidizing Agency.
- B.2 All of the Project's Affordable Units shall be restricted for sale to households earning no more than the maximum allowable household income, adjusted for household size, as determined by MassHousing or any substitute Subsidizing Agency. The Affordable Units shall be maintained as affordable in perpetuity, which for the purposes of this Decision shall mean for so long as the Property does not comply with applicable zoning requirements without the benefit of this Comprehensive Permit.
- B.3 The Applicant shall obtain approval by the Subsidizing Agency of an Affirmative Fair Housing Marketing Plan ("AFHMP") prior to the sale of any Affordable Units, and shall ensure that the Project complies with the Subsidizing Agency's Fair Housing requirements.
- B.4 For the initial sale of the units in the Project, the maximum number of Affordable Units allowed by law that may be subject to a local preference is seventy percent (70%), if approved by the Subsidizing Agency. The Board chooses not to implement any local preference, recognizing the regional need for affordable housing is paramount.

C. Submission Requirements

- C.1 Prior to any construction or site development activities (including site clearing, tree removal, grading, etc.) on the Property, whether or not pursuant to a building permit (except as allowed by the Director of Planning and Community Development, as noted below), the Applicant shall:
- a. Deliver to the Board a check in a reasonable amount determined by the Director of Planning and Community Development to be used for staff to retain outside experts, if necessary, for technical reviews and inspections required under these conditions but at inception shall not exceed \$6,500 unless an alternate amount has been agreed upon by the Board and the Applicant. Said funds shall be deposited by the Board in an account pursuant to G. L. c. 44, § 53G and shall only be used for technical reviews and inspections associated with this Project. Any unspent funds shall be returned to the Applicant with accrued interest at the completion of the project. If at any time the Board reasonably determines that there are insufficient funds to cover the costs of technical reviews, it shall inform the Applicant and the Applicant shall forthwith deliver additional funds as specified by the Board in a reasonable amount as may be determined by the Board. Said funds may be used by the Board to hire civil engineering, traffic engineering, and/or other professionals that the Board deems reasonably necessary to ensure compliance with the conditions hereof.
 - b. Obtain and file a copy of a National Pollution Discharge Elimination System (NPDES) Permit from the U.S. Environmental Protection Agency (EPA), if necessary. The Board shall also be provided a copy of the Stormwater Pollution Prevention Plan (SWPPP) submitted along with the NPDES filing.
 - c. Submit to the Board for review and administrative approval Final Engineering Drawings and Plans ("Final Plans"), such approval to be that the plans conform to the requirements of this Comprehensive Permit and incorporate the relevant conditions herein. The Final Plans shall also incorporate all relevant conditions and requirements of permitting agencies having jurisdiction. Applicable sheets of the Final Plans shall be signed and sealed by the Professional Land Surveyor of record, the Professional (Civil) Engineer of record, and a Registered Landscape Architect. Final Architectural Plans shall be stamped by a Registered Architect. The Final Plans shall be submitted to the Board at least forty-five (45) days prior to the anticipated date of commencement of building construction or submission of an application for building permits, whichever is earlier (the "Final Site Plan Submission Date").

- d. Submit to the Board for its administrative approval, a landscaping plan with the Final Plans, signed and sealed by a Registered Landscape Architect, depicting the following:
 - i. Overall planting plan that includes a demarcation of clearing and the limits of work;
 - ii. Planting plans for drives showing shade trees and lighting fixture locations;
 - iii. Plans of walkways in open space and recreation areas, if any;
 - iv. Prototype planting plans for each building;
 - v. Prototype screening plans for dumpsters, depicting plantings and fencing;
 - vi. Planting schedules listing the quantity, size, height, caliper, species, variety, and form of trees, shrubs, and groundcovers;
 - vii. Tree protection and preservation plans
 - vii. Construction fencing along abutting property lines; and
 - ix. Construction details.

All plantings shall consist of native, non-invasive, drought-tolerant species. Plantings installed along drives and walkways shall also be salt-tolerant. Twelve (12) months after completion of plantings, the Applicant shall remove and replace any dead or diseased plantings and trees serving as screening. The Condominium documents shall address ongoing maintenance of landscaping features.

- e. Submit to the Director of Planning and Community Development a construction mitigation plan including, but not limited to, dust control measures, fill delivery schedules, stockpiling areas, and like matters. Other than site work and such other work as may be authorized in writing by the Director of Planning and Community Development, no other construction of units shall commence and no building permits shall be issued under this Comprehensive Permit until the Director of Planning and Community Development and other applicable staff has approved the Final Plans as being in conformance with this Decision. If no written response or comments have been given to the Applicant by the Building Commissioner and/or Director of Planning and Community Development concerning the Final Site Plans within forty-five (45) days after the Final Site Plan Submission Date, the Final Plans, as delivered, will be deemed to have been approved.
 - f. The Applicant shall include on the Final Plans all of the various changes that have occurred during the hearing process. These plans should reflect site plan changes including but not limited to surface parking, proposed grading, stormwater systems, garage elevation, and other relevant site features.
 - g. The Final Plans shall show designated snow storage areas.
 - h. The Applicant must provide notification to the Arlington Assessor's Office for address and unit numbering.
- C.2 Prior to the issuance of any building permits, the Applicant shall:
- a. Record this Comprehensive Permit and the Subdivision Plan endorsed by the Board with the Middlesex South Registry of Deeds, at the Applicant's expense, and provide proof of such recording with the Board.
 - b. Submit to the Board and the Director of Planning and Community Development evidence of Final Approval from the Subsidizing Agency (MassHousing), as required by the Project Eligibility letter and the Chapter 40B regulations.
 - c. Submit to the Board a copy of the Regulatory Agreement and Monitoring Services Agreement for the Project. Execution and recording of such Regulatory Agreement with DHCD shall be complete prior to the issuance of any building permit. It is understood and agreed that Monitoring provisions may be included with the Regulatory Agreement, in lieu of a separate Monitoring Services Agreement.

- d. Submit to the Building Commissioner final Architectural Plans prepared, signed and sealed by an architect with a valid registration in the Commonwealth of Massachusetts (“Architectural Plans”). The Architectural Plans shall be submitted in such form as the Building Commissioner may request pursuant to the State Building Code.
- e. An automatic sprinkler system conforming with NFPA 13 and a fire alarm system conforming to NFPA 72 shall be required in all residential buildings. Both systems shall be monitored by a UL approved central station monitoring service.
- f. Obtain and file with the Building Commissioner a copy of all required Federal, State, and local permits and approvals required to begin construction of the Project.
- g. Obtain all necessary building, electrical, plumbing, and associated permits required to begin construction of the Project required by state law (it is understood that compliance with this requirement is part of the building permit process, rather than required prior to the issuance of building permits).
- h. The Applicant will be responsible for all applicable sewer permit, capacity impacts and privilege fees, as applicable.
- i. The Applicant will be responsible for all applicable water and sewer system fees as per officially promulgated fee schedules uniformly applicable to all other Town of Arlington projects.
- j. The Applicant shall perform additional test pits at the proposed stormwater basins to confirm groundwater elevations. These test pits shall be done during seasonal high groundwater conditions and shall be witnessed by the Town and/or its agent.

D. Construction Completion/Certificate of Occupancy

- D.1 Prior to issuance of a certificate of occupancy for any structure in the Project, the Applicant shall:
- a. Submit engineer’s interim certification of compliance with utilities plan and profiles for such Phase (as applicable) to the Building Commissioner.

- b. Provide a letter to the Board, signed by the Applicant's civil engineer, certifying that the structure and supporting infrastructure has been constructed in compliance with the Final Plans in all material respects.
 - c. Obtain acceptance from the Arlington Fire Department of testing of all fire protection systems, fire alarm systems, fire sprinkler systems, and local smoke alarms within the dwelling units of the structure.
 - d. Obtain a sewer connection sign-off from the Arlington Department of Public Works for the structure.
- D.2 Prior to issuance of the certificate of occupancy for the Project, the Applicant shall:
- a. Submit to the Board, in digital file format and full-size paper copies, a final as-built plan including profiles, showing actual-in ground installation of all applicable utilities, rim and invert elevations, roadway, sidewalk and associated construction. The file format shall be in AutoCAD file delivery shall be in full model view and individual sheet views. The digital file shall include property boundaries, dimensions, easements, rights-of-way, edge of pavement, edge of sidewalk, edge of water bodies, wetland boundaries, topographic contours, spot elevations, parking areas, road centerline and associated text. Said digital data shall be delivered in the Massachusetts State Plane Coordinate System, North American Datum 1983 and North American Vertical Datum 1988, in U.S. Survey Feet.
 - b. The Applicant shall provide to the Board evidence of a property management plan (if property management will be done in-house), or shall provide a copy of a contract with a Management Company if property management will be conducted by a third-party. The Applicant shall submit to the Board all information relating to the issues of building security, public access, pet policy, staffing, trash removal, and smoking policies, and other issues addressed in the conditions herein.
 - c. Submit to the Board, for review by its Counsel, a copy of the Condominium Association Master Deed and Rules and Regulations. At minimum, the Condominium Association Documents shall address issues relating to public access, snow removal, trash removal, and other issues addressed in the conditions herein.

E. Project Design and Construction

- E.1 Prior to the commencement of any work on the Property, the Applicant and the site general contractor shall attend a preconstruction conference with representatives from the Arlington Fire Department, the Department of Public Works (Arlington Water and Sewer Division and Engineering Division), Planning and Community Development and other Town staff and consultants as may be determined. The Applicant and the site general contractor shall host a meeting open to all members of the public to review the construction schedule, hours, policies, procedures, and other neighborhood impacts at least fourteen (14) days prior to the start of construction.
- E.2 Prior to the pre-construction conference, the Applicant shall submit a Construction Management Plan (“CMP”) for administrative approval by the Board. The CMP shall provide documentation of various construction related activities, including:
1. A Project Description and outline of primary construction tasks,
 2. A Project Schedule including hours of operation, duration of primary construction tasks and estimated completion date,
 3. Project logistics, including staging areas, truck routes, laydown areas, contractor parking, and construction traffic management,
 4. Site Management including noise mitigation, dust control and security,
 5. Public Safety and Coordination, including contact information and site inspections.
- E.2 The Applicant shall permit representatives of the Board to observe and inspect the Property and construction progress until such time as the Project has been completed and the final occupancy permit issued.
- E.3 The proposed construction shall be in accordance with applicable Federal and State laws, rules and regulations.
- E.4 All site retaining walls four (4) feet or greater in height shall be designed by a Massachusetts Professional Structural Engineer.

- E.5 During construction, the Applicant shall conform to all local, State, and Federal laws and provide advance notice to abutters per the Town's Residential Construction Control Agreement regarding noise, vibration, dust, and blocking of Town roads in order to accommodate delivery of materials to the site or for other construction staging purposes. The Applicant shall at all times use all reasonable means to minimize inconvenience to residents in the general area. Adequate provisions shall be made by the Applicant to control and minimize dust on the site during construction in accordance with the construction mitigation plan. The Applicant shall keep all portions of any public way used as access/egress to the Project free of soil, mud or debris deposited due to use by construction vehicles associated with the Project.
- E.6 Appropriate signage shall be shown on the Final Plans, consistent with the sign information shown on the Approved Plans. A temporary sign including the name and address of the project and contact information for the Applicant, general contractor, engineers, architect, and other relevant parties shall be posted on site for the duration of construction operations.
- E.7 The location of all utilities, including but not limited to electric, telephone, and cable, shall be shown on the Final Plans. All transformers and other electric and telecommunication system components shall be included on the Final Plans.
- E.8 The Applicant shall use electric heat and hot water for the Project, if reasonably available at the time of the submission of Final Plans.
- E.9 The Applicant shall install lighting on the site that conforms to the Town of Arlington's Zoning Bylaw and Town Bylaw. Lighting shall be down-lit/shielded to prevent light spillover onto surrounding properties and comply with dark sky requirements. Management of outdoor lighting shall be the responsibility of the Applicant.
- E.10 Utilities, including but not limited to telephone, electric, and cable, shall be located underground. The general contractor shall be responsible for coordinating all subsurface work with Dig Safe prior to the commencement of any excavation.
- E.11 Soil material used as backfill for pipes, access drives, or structures shall be certified by the Geotechnical Engineer to the Building Commissioner as meeting design specifications, as applicable.

- E.12 The Applicant shall test the soil during construction to confirm soil types in the areas of the infiltration system. Such testing shall be witnessed by the Board's designee. All unsuitable material, if any, discovered in excavation for the infiltration system shall be removed and disposed of in accordance with State and local regulations.
- E.13 Construction activities shall be conducted between the hours of 8:00 a.m. and 6:00 p.m., Monday through Friday and between the hours of 9:00 a.m. and 5:00 p.m. on Saturdays, Sundays, or legal holidays. For purposes of this condition, construction activities shall be defined as: start-up of equipment or machinery, delivery of building materials and supplies; delivery or removal of equipment or machinery; removal of trees; grubbing; clearing; grading; filling; excavating; import or export of earth materials; installation of utilities both on and off the site; removal of stumps and debris; loading of construction dumpsters and erection of new structures. All off-site utility work shall be coordinated and approved by the Building Department and shall not be subject to the timing restrictions set forth above. Parking of all vehicles and equipment must be on the Property during construction.
- E.14 Burning or burial of construction or demolition debris on the site is strictly prohibited. All such materials are to be removed from the site in accordance with applicable law. During construction, the site shall be secured against unauthorized entry or vandalism by fencing, or other appropriate means, and all construction materials shall be stored or stockpiled in a safe manner. Any floodlights used during the construction period shall be located and directed so as to prevent spillover or illumination onto adjacent properties. All construction activities are to be conducted in a workmanlike manner.
- E.15 No building areas shall be left in an open, unstabilized condition longer than sixty (60) days. Temporary stabilization shall be accomplished by hay bales, hay coverings or matting. Final stabilization shall be accomplished by loaming and seeding exposed areas.
- E.16 All dumpsters serving the Project shall be enclosed and covered (with the exception of construction dumpsters used during construction). The Board shall review the dumpster location as part of the approval of the Final Plans if different from what has been shown on the Approved Plans.
- E.17 All retaining walls visible from a public way or direct abutters, as determined by the Building Commissioner based upon the time of year when such walls would be most visible, shall be constructed in an aesthetic manner. Specifically, retaining walls shall avoid the use of exposed concrete to the greatest extent practicable.

- E.18 Snow shall be stored within the areas of the Property designated on the Approved Plans. To the extent snowfall exceeds the capacity of the designated snow storage areas, the Applicant shall truck the excess snow off-site. Snow may not be placed in or adjacent to resource areas.
- E.19 The Applicant shall comply with all applicable local, state and federal requirements relating to noise from construction activities, including the regulations contained at 310 CMR 7.10 and the DEP's Noise Policy contained in DAQC Policy 90-001 as well as the Arlington Noise Abatement Bylaw contained at Title V, Section 12. The Applicant shall also implement all necessary controls to ensure that vibration from construction activities does not constitute a nuisance or hazard beyond the Property. Upon notification from appropriate municipal officials, the Applicant shall cease all construction activities creating noise in excess of state and federal standards, and shall implement such mitigation measures as is necessary to ensure the construction activity will comply with applicable State and Federal requirements.
- E.20 The Applicant is responsible for the sweeping, removal of snow and sanding of the internal roadways and driveways providing access to both the residents of the Project and emergency vehicles. Neither snow nor sand may be placed in or adjacent to resource areas.
- E.21 The Applicant shall maintain all portions of any public road, whether state or local roads, used for access to the Property by construction vehicles, free from soil, mud or debris deposited due to such use during the duration of construction.
- E.22 The Applicant shall comply with DPW requirements regarding curb-cut permits.
- E.23 To the extent earth removal is necessary, the Applicant shall prepare an earth removal plan, showing all necessary cuts and fills, and describing the number of truck trips necessary for the earth removal.
- E. 24 All catch-basins shall have oil/water separators as shown on the Approved Plans.
- E. 25 Project sidewalks and pathways/walkways shall be compliant with the requirements of the Americans with Disabilities Act ("ADA") and the requirements of the Massachusetts Architectural Access Board ("AAB").
- E. 27 This Comprehensive Permit shall be a master permit which is issued in lieu of all other local permits or approvals that would otherwise be required, except for the issuance of Building Permits and Certificates of Occupancy by the Building Department under the State Building Code; provided, however, the Applicant

shall pay all local fees for such permits or approvals as published in the Town regulations or bylaws, including but not limited to building permits, inspections, water and sewer connections, and curb cuts.

E.28

F. Traffic/Traffic Safety Conditions / Sidewalks

- F.1 Site access will be provided via Massachusetts Avenue.
- F.2 The Applicant shall install all proposed traffic signs and pavement markings shown on the approved final plans. Signs and markings shall conform to the Manual on Uniform Traffic Control Devices (MUTCD), latest edition and other applicable state or local requirements.
- F.3 The proposed site provides fifty (50) parking spaces in a combination of structured garage spaces and surface parking spaces. No changes to the number, configuration or designation of parking spaces shown on the final approved plans shall be made unless approved by the Board through a modification process.
- F.4 The Applicant shall ensure that emergency vehicles can adequately maneuver through the site. The Arlington Fire Department shall review the Final Plans to ensure compliance with this condition.
- F.5 The Applicant shall provide ____ long-term bicycle parking spaces that are covered and secure.
- F.6 The Applicant shall provide ____ outdoor short-term bicycle parking spaces. These spaces shall be near a location of public building access, such as the courtyard area.
- F.7 The Applicant shall provide new residents with transportation information packets with information on getting around Arlington sustainably.
- F.8 The Applicant shall provide electric vehicle charging stations at 5% of the parking spaces in the garage. The Applicant shall provide for the expansion of the number of charging stations in accordance with tenant demand.

G. Police, Fire, and Emergency Medical Conditions

- G.1 The Condominium Association shall provide professional property management and maintenance personnel on the premises during typical business hours and an emergency contact name and number for unit owners and the Arlington Police Department and Fire Department.
- G.2 Stairwells and garages must be two-hour fire rated. Residential units must be one-hour fire rated.
- G.3 The residential structure shall be fully sprinklered to NFPA regulations.
- G.4 Compliance with all State Building Code and NFPA requirements relating to fire access and safety shall be met.
- G.5 All elevators must have emergency generator backup.
- G.6 The Project shall maintain fire access to all four sides of the residential structure at all times.
- G.7 The Project shall provide adequate external lighting to ensure safety of the residents of the Project. External lighting shall conform to the requirements of the local Regulation of Outdoor Lighting [Title V, Section 14].
- G.8 During times of construction, the Project, including all structures shall be accessible to Fire Department and other emergency vehicles. Additionally, all hydrants shall be operational during construction in accordance with NFPA requirements. Standpipes shall be operational on each floor during construction, as required by the Building Code and the Fire Department.
- G.9 The Applicant shall consult with the Fire Department prior to the commencement of construction to provide an on-site emergency plan, which shall be updated as necessary throughout the construction process.

H. Water, Sewer and Utilities

- H.1 The Applicant shall be responsible for the design and installation of the utilities servicing the Project.
- H.2 All water and sewer infrastructure shall be installed in conformance with the Arlington Water and Sewer Division's technical requirements. The Applicant shall provide the Arlington Water and Sewer Division with calculations to ensure the distribution system for the area has the necessary capacity to meet system demand required prior to the commencement of construction.

- H.3 Fire hydrants shall be placed as shown on the Approved Plans in locations approved by the Arlington Fire Department. If the Arlington Fire Department approves different hydrant locations, such modification shall be accepted administratively as an insubstantial change pursuant to 760 CMR 56.05(11).
- H.4 The service size for the domestic water service should be verified by the Arlington Water and Sewer Division and information on the fire service size and requirements should be verified by the Arlington Fire Department. The Applicant shall submit information regarding the size of both the domestic and fire services as part of Final Plans, after consultation with the Arlington Water and Sewer Division. The Applicant shall replace the water main, hydrants and gate valves. Any connections to the Town water main shall be triple-gated and a tee connection.
- H.5 The water and sewer utilities servicing the buildings in the Project shall be installed and tested in accordance with applicable Town requirements and protocols, except as may be waived herein.
- H.6 Utilities shall be installed underground by the Applicant using methods standard to those installations. Utilities shall be defined as electric service lines, telephone lines, water service lines, CATV lines, municipal conduit and the like. The Applicant shall request a Grant of Location from the Select Board for any installation of new utility poles or underground conduit in the public right of way as needed.
- H.7 The Applicant shall be responsible for all trash and recycling removal from the Property. The Town of Arlington shall not have any responsibility for trash, recycling, compost, and/or yard waste pickup at the Property.
- H.8 Fire hydrants shall remain private, and shall be maintained by the Applicant.

I. Wetlands/Floodplain/Environmental Conditions

- I.1 Prior to the commencement of construction, erosion control measures shall be installed consistent with the Approved Plans.
- I.2 No uncovered stockpiling of materials shall be permitted within the 100 foot Wetland Buffer Zone or Adjacent Upland Resource Areas (“AURA”) or other resource areas.
- I.3 No dumpsters shall be allowed within the AURA or other Resource Areas.
- I.4 No heavy equipment may be stored within the AURA of other Resource Area.

- I.5 Any dirt or debris spilled or tracked onto any paved streets shall be swept up and removed daily.
- I.6 The Applicant must retain a professional engineer to oversee the installation of the stormwater management system. A stormwater mitigation report must be submitted to the ZBA within 10 days of the completion of the stormwater management system. The stormwater report shall include as-built plans, photographs from installation, and a written summary of the installation of the stormwater management system and stormwater best management practices.
- I.7 To avoid adding excess nitrogen runoff, the Applicant shall only treat the planted areas within resource areas with slow release nitrogen fertilizer. Application of this fertilizer cannot occur in the summer, or after storm events. Lawn fertilizer shall only be applied twice a year, in spring and fall. The application of plant nutrients shall otherwise comply with 330 CMR 31.00. No other herbicides or treatment methods are approved. No pesticides or rodenticides shall be used to treat pest management issues within Resource Areas. These shall be continuing conditions in perpetuity that survives the expiration of this permit.
- I.8 Pervious surfaces shown on the project plans shall be maintained as specified in the stormwater report and logs/reports shall be maintained by the Applicant. Pervious surfaces shown on the project plans shall not be replaced by impervious surfaces. This shall be a continuing condition in perpetuity that survives the expiration of this permit.
- I.9 No snow storage is permitted within the AURA or other Resource Areas. A snow storage plan shall be submitted to the ZBA prior to construction completion. If these areas are insufficient for storage during the snow season, snow shall be removed from the site. Sediments and debris shall be removed from snow storage areas in the early spring. This shall be a continuing condition in perpetuity that survives the expiration of this permit.
- I.10 The Applicant shall protect all adjacent catch basins using silt socks during construction.
- I.11 The Applicant shall conduct catch basin sump cleanings at the end of the project work period.
- I.12 The Applicant shall submit copies of the SWPPP inspection reports to the ZBA within 10 days of the date of each report.

- I.13 The Applicant shall submit for review and approval by the ZBA an invasive management plan for work in the AURA and other Resource Areas outlining all locations for invasive management, the species and quantities of invasive plants to be managed, and the method of management.
- I.14 All mitigation plantings and all plantings within resource areas shall be native and be installed and maintained according to the standards of the American Association of Nurserymen (AAN). No cultivars of native plantings shall be allowed. This shall be a continuing condition in perpetuity that survives the expiration of this permit.
- I.16 All plantings planted and invasive species removed through this project in Resource Areas or as mitigation shall be monitored for three years. A monitoring report shall be submitted annually in June for the three year monitoring period, reporting on the health of the new plantings and the success of the invasive plant management. The annual report shall identify any plantings that did not survive and summarize the replacement of the plantings. A survival rate of 80% must be achieved at the end of the third monitoring year. If there is less than a 80% survival rate of the plantings after the third year, the Applicant must submit recommendations for replacements to the ZBA for approval.
- I.17 The Applicant shall protect all area trees per the Town Wetlands Protection Regulations, Section 24 Vegetation Removal and Replacement, protecting trees through securing (not nailing) 2x4 boards, between 6-8 feet in length, around tree base. The boards shall be installed vertically such that one end is installed directly into the ground. Alternative protection measures must be approved by the ZBA.
- I.18 All mitigation as proposed as part of this project shall remain in perpetuity. The approved planting areas, invasive removal areas, the water quality units, and the stormwater system shall remain in perpetuity and if replacement is necessary, shall be subject to the approval of the Commission. This shall be a continuing condition in perpetuity that survives the expiration of this permit.

J. Other General Conditions

- J.1 This Decision will be deemed to be final upon the expiration of the appeal period with no appeal having been filed or upon the final judicial decision following the filing of any appeal, whichever is later, as per 760 CMR 56.05(12)(a). In accordance with 760 CMR 56.05(12)(c), this Comprehensive Permit shall expire three (3) years from the date that the permit becomes final, unless (i) prior to that time construction authorized by the Comprehensive Permit has commenced or (ii) the time period is otherwise tolled in accordance with law. The Applicant may timely apply to the Board for extensions to the Comprehensive Permit as permitted by law.
- J.2 The Applicant shall comply with all local regulations of the Town and its boards, commissions, and departments unless specifically waived herein or as otherwise addressed in these conditions.
- J.3 The Applicant shall copy the Board on all correspondence between the Applicant and any federal, state, or Town official, board, or commission concerning the conditions set forth in this Decision, including but not limited to all testing results, official filings, environmental approvals, and other permits issued for the Project.
- J.4 This Decision prohibits the parking or storage of any unregistered vehicle on the site, and likewise prohibits the service of any vehicles on the site, except during construction. Overnight parking of vehicles on public ways is prohibited in the Town of Arlington.
- J.5 In the event that the Condominium Association (or its Management Company) fails to maintain the stormwater management system for the Project in accordance with its operation and maintenance plan, within fourteen (14) days of notification by the Town to the Condominium Association/Management Company, the Town may conduct emergency maintenance and/or repair, as it deems necessary, and the Applicant shall, prior to the issuance of any certificates of occupancy, convey such easement or other rights in a form mutually acceptable to the Town and the Applicant as may be reasonably necessary to complete such repair and/or maintenance. In the event the Town opts to perform such maintenance in accordance with this paragraph, the Applicant shall reimburse the Town within forty-five (45) days for all of its reasonable expenses related to such work.
- J.6 The Project entrance way and interior roads, and drainage systems associated therewith shall remain private, and the Town shall not have any legal responsibility for the operation and maintenance of such. The Town shall also have no obligations relating to the proposed recreational areas on the Property, the construction and operation of which shall be the sole responsibility of the Applicant.

- J.7 If any default, violation or breach of these conditions by the Applicant is not cured within thirty (30) days after notice thereof (or such longer period of time as is reasonably necessary to cure such a default so long as the Applicant is diligently and continuously prosecuting such a cure), then the Town may take one or more of the following steps: (a) enforcement by the Zoning Enforcement Officer pursuant to G. L. c. 40A, § 7; (b) by mandamus or other suit, action or other proceeding at law or in equity, require the Applicant to perform its obligations under these conditions; or (c) take such other action at law or in equity as may appear necessary or desirable to enforce these conditions. If the Town brings any claim to enforce these conditions, and the Town finally prevails in such claim, the Applicant shall reimburse the Town for its reasonable attorneys' fees and expenses incurred in connection with such claim.

DECISION

In consideration of all of the foregoing, including the plans, documents and testimony given during the public hearing, the Board hereby grants the Applicant a comprehensive permit for the construction of fifty (50) home-ownership condominium units in a single structure, along with approximately 935 square feet of commercial space, pursuant to Chapter 40B, §§ 20-23, for the development described above.

RECORD OF VOTE

The Board of Appeals voted _____, at its public meeting on _____, 2023, to grant a Comprehensive Permit subject to the above-stated Conditions, with this Decision as attested by the signatures below.

Decision on Application for Comprehensive Permit
1025 Mass Ave, LLC
1021-1025 Massachusetts Avenue, Arlington, MA
April __, 2023
Page 27 of 30

Dated: _____, 2023

Filed with the Town Clerk on _____, 2023.

Town Clerk

Notice: Appeals, if any, by any party other than the Applicant, shall be made pursuant to Massachusetts General Laws, Chapter 40A, s. 17, and shall be filed within twenty (20) days after the filing of this notice in the Office of the Town Clerk, Town Hall, Groveland, Massachusetts. Any appeal by the Applicant shall be filed with the Housing Appeals Committee pursuant to G. L. c. 40B, § 23, within twenty (20) days after the filing of this notice in the Office of the Town Clerk.

DECISION ON WAIVERS

The Board takes the following action on the waiver requests of local rules and regulations submitted by the Applicant as it has determined necessary for the construction of the Project as approved by the Board:

1. Zoning Bylaws Article 5, Section 5.5.3 – This section prohibits multi-family use in the underlying zoning district. The Applicant requests a waiver of this section to allow the proposed Project consisting of fifty (50) multi-family home-ownership condominium units and associated 935 square feet of commercial space.

Board Action: Waiver Granted.

2. Zoning Bylaws Article 5, Section 5.5.2 – This section requires a minimum front yard setback of twenty feet (20'). The Applicant requests a waiver to allow a minimum front setback of seventeen feet (17').

Board Action: Waiver Granted.

3. Zoning Bylaws Article 5, Section 5.5.2 – The Applicant also requests a waiver of the maximum height requirement of this section, which limits the height of structures to three (3) stories and thirty-five feet (35'). The Applicant requests a waiver to allow a structure containing five (5) stories and a building height of sixty-six feet four inches (66'4").

Board Action: Waiver Granted.

4. Zoning Bylaws Article 5, Section 5.5.2 – The Applicant also requests a waiver of the Floor Area Ratio (FAR) requirement in this section, which limit FAR to a maximum of .75. The Applicant requests a waiver to allow a FAR of 2.0.

Board Action: Waiver Granted.

5. Zoning Bylaws Article 6, Section 6.1.4 – This Section requires 1.15 parking spaces per one-bedroom unit, 1.5 spaces per two-bedroom unit and two spaces per units having three or more bedrooms. The Applicant requests a waiver to allow a total of fifty (50) parking spaces for the proposed fifty (50) condominium units and associated 935 square feet of commercial space.

Board Action: Waiver Granted.

6. Bicycle Parking Design Guidelines – These Guidelines do not allow hanging bike spaces to count toward the minimum number of required bike spaces. The Applicant requests a waiver to allow forty-nine (49) bicycle storage units in the basement and twenty-six (26) hanging bicycle spaces in the garage.

Board Action:

7. Town Bylaws, Title V, Article 16, Sections 2 and 4 (Tree Protection and Preservation) – The Applicant requests a waiver of the requirement to make a payment to the tree fund for removal of protected trees, in lieu of the riverfront restoration proposed in the Approved Plans.

Board Action: Waiver Granted.

8. Town Bylaws, Title V, Article 8 (Wetlands Protection) – The Applicant requests a waiver of the procedural requirement of obtaining an Order of Conditions from the Arlington Conservation Commission. No substantive waivers of the Wetlands Protection Bylaw was requested.

Board Action: Waiver Denied as Unnecessary. Pursuant to G. L. c. 40B, §§ 20-23, a comprehensive permit subsumes all local permitting requirements. Accordingly, this comprehensive permit includes an Order of Conditions under the local bylaw, thus no waiver is required.

9. Town Bylaws, Title V, Article 15 (Stormwater Management) – The Applicant requests a waiver of the procedural requirements of obtaining approval of a stormwater management plan. No substantive waivers of this article are requested.

Board Action: Waiver Denied as Unnecessary. Pursuant to G. L. c. 40B, §§ 20-23, a comprehensive permit subsumes all local permitting requirements. Accordingly, this comprehensive permit includes approval of the stormwater management plans under the local bylaw, thus no waiver is required.

10. Arlington Historical Commission – The Applicant notes that the structure at 1021 Massachusetts Avenue is listed on the Historic Structures Inventory, requiring a determination from the Arlington Historical Commission whether the structure is preferably retained under the demolition delay bylaw. The Applicant requests that the Board determine that the structure is not required to go through the demolition delay process.

Board Action:

11. Town Bylaw Title V, Article 14 (Outdoor Lighting) – This bylaw prohibits uplighting. The Applicant requests a waiver to allow some uplighting as shown on the Approved Plans.

Board Action:

12. Sewer Inflow and Infiltration Fees – The Applicant requests a waiver of any applicable sewer inflow and infiltration fees.

Board Action: Waiver Granted.

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April 10, 2023

Chairman Christian Klein and
Members of the Zoning Board of Appeals for the Town of Arlington
23 Maple Street
Arlington, Massachusetts 02476

**Re: 1021-1025 Massachusetts Avenue
Arlington, Massachusetts**

Dear Mr. Klein & Members of the Board of Appeals:

Patriot Engineering LLC (Patriot) is pleased to submit this letter in support of the sanitary sewer capacity for the proposed residential project located at 1021-1025 Massachusetts Avenue.

In response to the comment below received as part of Tetra Tech's review of the project:

We recommend the applicant provide a simple memorandum or similar documentation by a licensed Massachusetts engineer demonstrating the Project can be served adequately without impacts to existing or proposed infrastructure or its users. At a minimum the documentation should describe and quantify proposed demand, describe existing infrastructure serving the site, provide calculations demonstrating available capacity/service and describing improvements, if any, needed to town infrastructure to serve the Project. If offsite infrastructure improvements are required to serve the Project, please note them clearly in the memorandum. Documentation is requested as a factual basis on which the Board can rely in determining the Project can be safely served by local infrastructure. It is not intended to suggest issues may exist.

The proposed building will contain 50 residential units when complete. To analysis the sanitary flow from the project the total proposed numbers of bedrooms of 97 is used to determine the base sanitary flow for the project. Using the 110 gallons per day (GPD) per bedroom established in 310 CMR 15 (Title 5 of the State Environmental Code) the total average daily flow from the project can be calculated.

$$97 \text{ BEDROOMS} \times 110 \text{ GPD} / \text{BEDROOM} = 10,670 \text{ GPD}$$

A peaking factor of 5.0 is applied to the average daily flow to yield an average daily flow of 53,350 GPD ($10,670 \times 5$). This is equal to 37.05 gallons per minute ($53,350 \text{ gpd} / 1440 \text{ min}$).

Then converting 37.05 gallons per minute to cubic feet per second (CFS) using $[(\text{gallons per minute (gal/min)}) / 7.48066] / 60$ is equal to 2.22801×10^{-3} cubic feet per second (ft^3/s) yields an average peaked flow of 0.0825 CFS.

The capacity of the existing sanitary sewer is examined based on record plans with the Town of Arlington Engineering Department showing a 12-inch diameter main line with a slope of 0.95%. Using Manning's equation, the capacity of the existing sanitary line is determined:



Manning Equation:

$$Q = VA \quad V = \frac{k}{n} \left(\frac{A}{P} \right)^{2/3} S^{1/2}$$

k is a unit conversion factor: k=1.49 for English units (feet and seconds). k=1.0 for SI units (meters and seconds).

A=Flow area of the pipe, culvert, or channel.

P=Wetted perimeter which is the portion of the circumference that is in contact with water.

Q=Discharge (flow rate).

S=Downward (longitudinal) slope of the culvert.

V=Average velocity in the pipe, culvert, or channel.

The result of Manning's equation for the half full capacity of the existing 12-inch diameter sewer main in Massachusetts Avenue that the project will connect is 1.74 CFS.

Therefore, the project peak sewer flow of 0.0825 CFS is less than the half full capacity of the existing sewer main (1.74 CFS) showing available capacity.

The condition of the existing sewer main was evaluated on March 31, 2023. Three manholes were opened: the manhole directly upstream of the project, the manhole within the project frontage and the manhole directly downstream of the project. Each manhole was observed to be free flowing and showing no evidence of back up at the time of observation. Each manhole also showed no sign of historical back up as the manhole's shelves were clean and the structure was deemed to be in good shape. The observation began at approximately 830am on 03/31/2023. Pictures of each manhole have been included with this letter.

We anticipate this information addresses the comment issued by Tetra Tech. Should you have any questions or require any further details, please feel welcome to email to mnovak@patriot-eng.com

Sincerely,
PATRIOT Engineering LLC,

Michael J Novak, P.E.
Patriot Engineering LLC
35 Bedford Street, Suite 4
Lexington, MA 02420



UPSTREAM



AT PROJECT



DOWNSTREAM



TOWN OF ARLINGTON

Zoning Board of Appeals

730 Massachusetts Avenue

Arlington, MA 02476

DECISION ON APPLICATION FOR COMPREHENSIVE PERMIT

G.L. c. 40B, §§ 20-23

APPLICANT: 1025 Mass Ave, LLC (“Applicant”)

PROPERTY: 1021 and 1025 Massachusetts Avenue, Arlington, MA (the “Property”)

ASSESSORS’ MAP: Assessors Parcel 055.0-0002-0019.0 and 055.0-0002-0020.0

DEVELOPMENT NAME: The Residences at Mill Brook

DATE: April __, 2023

I. PROCEDURAL HISTORY

1. An application for a Comprehensive Permit was received by the Town of Arlington Zoning Board of Appeals (“Board”) on or about September 20, 2022 (“Application”). The Application proposes the development of fifty (50) units of home ownership housing with associated parking in a single structure located at the Property (the “Project”).
2. The Board’s public hearing on the Application was duly opened on December __, 2022 (after the Applicant granted an extension of the thirty-day period to open the public hearing).
3. The Project is located on the Property, which is located at 1021-1025 Massachusetts Avenue, Arlington, Massachusetts. The Property is adjacent to the Residence 6 (R6) Zoning District as is abutted by an apartment building, a two family, and a condominium development known as Mill Brook located on approximately 1.08 acres of land.
4. The Property is located in the ~~Industrial~~ Business 1 (B1) Zoning District and is adjacent to the Residence 6 (R6) Zoning District. Nearby-Abutting uses are an apartment building with 12 units, a two family building, and condominium

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building with 98 units, and other nearby uses consist of commercial and office uses.

5. The Property consists of approximately 1.08 +/- acres. The Property currently contains two (2) existing structures on footprints comprising ~~11~~11% lot coverage of the Property. Additionally, the Property contains significant pavement, covering approximately ~~25~~25% of the Property, for a current total impervious area of ~~36~~36%. No stormwater management structures are present on the Property to attenuate runoff from the existing impervious area.
6. The Applicant provided various materials, reports, studies, and revised plans throughout the course of the public hearing on the Application.
7. The Applicant proposes the fifty (50) home ownership condominium units in a single structure, of which a minimum of twenty-five percent (25%) will be restricted as affordable units as determined by the Subsidizing Agency. The Applicant also proposes approximately ~~935~~1700 s.f. of ground-level commercial space.
8. During the public hearing, the Applicant was assisted primarily by its principal Matthew Maggiore, Jacquelyn Maggiore and ~~David Mann~~Paul Maggiore, of Maggiore Construction, its counsel Paul Feldman, Esq., of Davis Malm, its civil engineer Michael J. Novak, P.E., of Patriot Engineering, LLC, its architect Chris Mulhern, AIA, of Harrison Mulhern Architects, its environmental consultant Richard A. Kirby, of LEC Environmental Consultants, Inc., and its traffic engineer Shaun P. Kelly, of Vanasse & Associates, Inc.
9. The Board utilized the services of Sean Reardon, P.E., of BETA Group, Inc., and Cliff Boehmer of Davis Square Architects for design review. The Board also utilized the services of Town Counsel Douglas Heim, Esq., Planning Director Claire Ricker, and other town staff. The Board was also represented during the course of the hearing by Paul Haverty, Esq., of Blatman, Bobrowski, Haverty & Silverstein, LLC as its Chapter 40B technical consultant through a grant from the Massachusetts Housing Partnership.
10. During the public hearing, there was significant public input. The Board heard input from abutters and other interested persons throughout the hearing process. The Board also heard significant input from town departments, including the Conservation Commission, the Department of Planning and Community Development, and the Transportation Advisory Committee.

II. JURISDICTIONAL FINDINGS

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11. The Applicant has demonstrated its eligibility to submit an application for a Comprehensive Permit to the Board, and the development fulfills the minimum project eligibility requirements set forth in 760 CMR 56.04(1) as follows:
 - a. The Applicant is a limited liability company, and has indicated in its application that it will conform to the limited dividend requirements of G. L. 40B, §§ 20-23, thus establishing it is a limited dividend entity. The Applicant has a principal address of 13 Wheeling, Avenue, Woburn, MA 01801.
 - b. The Applicant has received a written determination of Project Eligibility from MassHousing dated August 19, 2022 under the New England Fund Program, a copy of which was provided to the Board with the original application.
 - c. The Applicant provided a copy of a Purchase and Sale Agreement between 1021 Massachusetts Avenue, LLC and MAJ Investment, LLC (~~a related entity of 1025 Mass Ave, LLC~~ that has been assigned to the Applicant) and a copy of a Purchase and Sale Agreement between Jonathan Nyberg and Sara Q. Dolan and MAJ Investment, LLC (that has been assigned to the Applicant). The Subsidizing Agency determined that the Applicant has site control to pursue a comprehensive permit a part of its Project Eligibility Letter. Pursuant to 760 CMR 56.04(6), this determination is conclusive as to the issue of site control.
 - d. The Applicant has agreed to execute a Regulatory Agreement that limits its ~~annual distributions~~ return in accordance with G. L. c. 40B and the regulations (760 CMR 56.00 et seq.) and guidelines adopted thereunder by DHCD.
12. The Town of Arlington ("Town") did not meet the statutory minima set forth in G. L. c. 40B, § 20 or 760 CMR 56.03(3) to 56.03(7) at the time the original application was filed.
 - a. At the time of the filing of the Application, the number of low or moderate income housing units in the Town constituted ~~—~~ 5.7% of the total year-round housing units in the Town, based on the most recent publicly available copy of the DHCD Subsidized Housing Inventory, dated December 21, 2020. Thus, the Town does not meet the ten percent (10%) statutory minimum.
 - b. In another pending comprehensive permit application, the Board has asserted a claim that there are existing affordable housing units that are on

sites that comprise more than one and one half percent (1.5%) of the total land area of the Town that is zoned for residential, commercial or industrial use (excluding land owned by the United States, the Commonwealth of Massachusetts, or any political subdivision thereof). The Board timely asserted this claim pursuant to 760 CMR 56.03(8). The Applicant appealed this claim to the Department of Housing and Community Development, which issued a decision dated November 17, 2016, reversing the Board's Safe Harbor determination. The Board appealed this decision to the Housing Appeals Committee. On October 15, 2019, the Housing Appeals Committee upheld the decision of the Department of Housing and Community Development. The Board ultimately issued a decision approving a comprehensive permit for this development, which is currently under appeal. Without waiving its rights on the other pending application, the Board did not provide the Applicant ~~of~~ with written notice of this safe harbor pursuant to 760 CMR 56.03(8) on this application.

- c. The granting of this Comprehensive Permit will not result in the commencement of construction of low or moderate income housing units on a site comprising more than three tenths of one percent of land area in the Town or ten acres, whichever is larger, zoned for residential, commercial or industrial uses (excluding land owned by the United States, the Commonwealth of Massachusetts or any political subdivision thereof) in any one calendar year.
- d. The Town has an approved Housing Production Plan pursuant to 760 CMR 56.03(4), but is not currently within (or eligible for) certification.
- e. The Town has not achieved recent progress toward its housing unit minimum pursuant to 760 CMR 56.03(5).
- f. The Project as originally submitted does not constitute a Large Project pursuant to 760 CMR 56.03(6).
- g. The Applicant's Comprehensive Permit Application does not constitute a Related Application pursuant to 760 CMR 56.03(7).

III. FACTUAL FINDINGS

Location of Project

13. The Project is located on a previously developed 1.08 acre parcel of land located at ~~1021-1025~~ 1021-1027 Massachusetts Avenue. A portion of the Property is

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located within the 200-foot riverfront area for Mill Brook. The Property is located within the ~~Industrial~~ (Business 1 (B1)) Zoning District.

14. In addition to being located next to various commercial uses, the Project also ~~abuts~~ directly abuts an apartment building with 12 units, a two family building, and condominium building with 98 units.

Wetlands

15. The Applicant proposes work within the outer two hundred foot (200') buffer to the riverfront area associated with Mill Brook. This ~~work includes riverfront area already consists of a degraded area of 2,517+/- square feet that is an existing paved parking area. The proposed work includes 4,619+/- square feet of disturbance to the riverfront area~~ construction of portions of the proposed structure resulting in new degraded riverfront area of 2, the 102+/- square feet. The installation of a subsurface stormwater management infiltration system is also proposed in the riverfront area. Two areas of on-site mitigation are proposed to address the new disturbance to the riverfront area: (1) creation of a restored woodland area of 7,362+/- square feet and (2) creation of a meadow area of 4,119+/- square feet. The work will also include removal of trees, the installation of erosion controls, grading, and installation of a retaining wall, paths, a bench and fencing; ~~the installation of a subsurface infiltration system and the creation of an urban park. The work within the outer two hundred foot (200') buffer zone to the riverfront will also include 2,514 square feet of existing paved parking area.~~
16. The Project also proposes ~~limited work~~ off-site enhancement within ~~the inner one hundred foot (100') buffer zone to of~~ Mill Brook, ~~including grading and erosion control~~ consisting of the removal of invasive plants and installation of new native plantings.
17. The Project will be required to obtain an Order of Conditions from the Arlington Conservation Commission pursuant to the Wetlands Protection Act.
18. ~~The Project proposed _____ square feet of~~ All work within the ~~AURA~~ Adjacent Upland Resource Area (AURA) is limited to for the woodland restoration and replacement of an existing fence.
19. The Project is in compliance with Section 25D of the Arlington Regulations for Wetlands Protection because ~~the Project proposes mitigation to increase the pervious area within the 0'-25' AURA, which is considered an enhancement of the resource area~~ 0'-25' AURA is off-site and no additional pervious area will occur.

20. The Applicant submitted an Impact Analysis on the Natural and Built Environment prepared by LEC Environmental Consultants, Inc.
21. The Applicant utilized NOAA 14+ data for the stormwater management calculations, consistent with current best practices.

The Transportation Network

22. Primary access to the Project will be from Massachusetts Avenue.
23. The Project will provide fifty (50) on-site parking spaces for the residential units and commercial space.
24. The Project will provide ~~—~~49 bicycle parking spots in the basement and 26 hanging bicycle racks in the garage.

Civil Engineering, Site Design, and Stormwater Impact

25. The Board engaged in review of potential civil engineering, site design, traffic, stormwater and floodplain impacts of the Project.
26. The Project will connect to the Arlington municipal water and sewer systems.
27. Approximately ~~—~~25% of the site is currently covered by impervious surface. The Project will ~~—~~increase the amount of the site covered by impervious surface to ____% of the Property. ~~The Board finds that reduction in the total amount of impervious surface is a benefit to the Property. Applicant proposes installation of a full stormwater mitigation system designed in full compliance with the Massachusetts Stormwater Regulations and based on with stormwater calculations using National Oceanic and Atmospheric Administration NOAA++ precipitation data. This system adequately and appropriately addresses the increase in the amount of impervious surface that is proposed.~~
28. Stormwater management has been designed to be in compliance with the Mass Stormwater management standards in accordance with 310 CMR 10.05(6)(k) through (q) and defined in detail in the MassDEP Stormwater Management Handbook. The system incorporates best management practices (BMP's) to facilitate total suspended solids (TSS) removal, infiltration and detention of stormwater flows.
29. The Project, as conditioned herein, will address the lack of affordable home ownership units in the Town.

30. The Board finds that the conditions imposed in Section IV of this Decision are necessary in order to address Local Concerns. The Board finds that such conditions will not render the project uneconomic. To the extent that such conditions may render the project uneconomic (as defined in 760 CMR 56.02), the Board finds that the Local Concerns outweigh the potential benefits of the proposed affordable units.
31. The Board finds that granting certain waivers from local by-laws and regulations is acceptable even though granting waivers may have an adverse impact on Local Concerns.
32. The Board acknowledges concerns raised by abutters and other interested parties about the Project's potential incompatibility with nearby uses, ~~particularly relating to traffic and parking impacts~~. The Board has addressed these concerns by the imposition of appropriate conditions. The Board further finds that conditions detailed below appropriately address these matters of local concern in a manner that outweighs the regional need for affordable housing. The Board finds that the conditions imposed below address local and regional housing needs while properly protecting valid issues of local concern.
33. The Board finds that the construction of the Project, as conditioned, will be consistent with local needs.

IV. CONDITIONS

A. **General**

- A.1 The holder of this Comprehensive Permit is 1025 Mass Ave, LLC. The Property is defined as the property located at 1021 and 1025 Massachusetts Avenue, Arlington, Massachusetts, shown on a plan entitled "1021 and 1025 Massachusetts Avenue, Comprehensive Permit Plan Set, Located in Arlington, MA" dated September 19, 2022, with revisions through _____, prepared by Patriot Engineering. The Project is defined as all features shown on the plans listed below in Condition A.2 or as otherwise required by this Comprehensive Permit. The Project is intended to be declared as a condominium and therefore use of the term Applicant herein shall also include the Condominium Association for any conditions that are continuing obligations after the Project is constructed and the condominium created.
- A.2 Except as may be provided for in the following Conditions or in the Final Plans referenced below, the Project shall be constructed substantially in conformance with the plans and drawings listed below in this Condition A.2, which for

purposes of this Comprehensive Permit shall be considered the Approved Plans for the Project (“Approved Plans”). Minor changes to the Approved Plans (e.g., changes that do not materially affect the location of, or increase the height or massing of the structures, or increase the number of units contained in the residential buildings) shall be submitted to the Director of Planning and Community Development who shall have the authority to approve such changes as immaterial changes. If the Director of Planning and Community Development determines that the proposed changes do not conform to the requirements of this Comprehensive Permit, they shall so notify the Applicant and the Applicant shall either bring the plans into conformance with this Decision or seek modification in accordance with 760 CMR 56.05(11). The Approved Plans consist of the following plan set from Patriot Engineering, Inc., and Harrison Mulhern Architects:

“1021 and 1025 Massachusetts Avenue, Comprehensive Permit Plan Set, (1021 Assessors Map 55, Lot 19) (1025 Assessors Map 55, Lot 20) Comprehensive Permit Plan Set, (To Accompany a Zoning Board of Appeals Application) Located in Arlington, MA dated September 19, 2022”, with revisions through _____, prepared by Patriot Engineering, and consisting of the following sheets:

Sheet 1	Cover Sheet
Sheet 2	Existing Conditions Plan
Sheet 3	Site Demolition Plan
Sheet 4	Site Grading and Utility Plan
Sheet 5	Site Utility Plan
Sheet 6	Site Details – I
Sheet 7	Site Details - II

“1021-1025 Massachusetts Avenue, Arlington, MA” dated September 19, 2022 prepared by Harrison Mulhern Architects, with revisions through _____, ~~2021~~April 14, 2023, and consisting of the following sheets:

A 1.0	Basement Floor Plan
A 1.1	Ground Floor Plan
A 1.2	Second Floor Plan
A.1.3	Third Floor Plan
A 1.4	Fourth Floor Plan
A 1.5	Fifth Floor Plan
<u>A.1.6</u>	<u>Roof Plan</u>
A 2.1	Front Elevation/Rear Elevation
A 2.2	Right Elevation/Left Elevation
A 2.3	Section Elevation

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- A 2.4 Section Elevation
- A 2.5 Street Context Elevation
- A 3.1 View From Mass. Ave
- A 3.2 ~~Aerial~~ Aerial View

Lighting details are contained in the plan entitled “_____”
~~consisting of the following sheet:~~ 1021 Massachusetts Avenue Photometric Plan
prepared by Robert J. Lindstrom and dated September 13, 2022.

Utility Plan entitled “Site Utility Plan details are contained in the plan entitled
“Proposed Site Plan Located in Arlington, MA (Middlesex County) prepared for
MAJ Investment, LLC” dated September 16, 2022, prepared by Patriot
Engineering.

- A.3 The Applicant shall be a Limited Dividend Entity as required by Chapter 40B and its successors and assigns shall comply with the limited dividend and other applicable requirements of Chapter 40B and the regulations adopted thereunder.
- A.4 The Project shall consist of not more than fifty (50) home ownership condominium units located in a single structure, and other related residential amenities, all as shown on the Approved Plans. The Project shall consist of no more than ~~_____~~ (~~—~~ ninety five (95) bedrooms. The Project shall also consist of approximately 965 square feet of commercial space on the ground floor.
- A.5 There shall be fifty (50) vehicle parking spaces (inclusive of required handicap spaces).
- A.6 Pursuant to the revised Waiver List submitted to the Board and attached hereto as Exhibit A, the Applicant has requested, and the Board has granted, those waivers from the Arlington Zoning Bylaw and other local by-laws and regulations as specified therein. No waivers are granted from requirements that are beyond the purview of G.L. c. 40B, §§ 20-23. No waiver of permit or inspection fees has been granted. Any subsequent revision to the Approved Plans, including but not limited to revisions in the Final Plans, referenced below, that requires additional or more expansive waivers of any local by-laws or regulations, must be approved by the Board in accordance with 760 CMR 56.05(11).

- A.7 Except as otherwise specifically provided herein, where this Decision provides for the submission of plans or other documents for approval by the Director of Planning and Community Development or other Town Departments, the Director of Planning and Community Development or applicable Department Head will use reasonable efforts to review and provide a written response within ~~forty-five~~ fifteen (45~~15~~) days following submission. ~~For submissions that require assistance from an outside consultant, as determined by the Director of Planning and Community Development or applicable Department Head, the thirty-day time period shall not begin until the consultant's fee has been fully funded by the Applicant. Should forty-five~~ Should fifteen (45~~15~~) days elapse without a response as aforesaid, said plans or documents shall be deemed approved.
- A.8 This Comprehensive Permit may be subsequently assigned or transferred pursuant to 760 CMR 56.05(12)(b). The pledging of the Property as security under any conventional loan financing terms as set forth in the financing entity's Loan Documents or any foreclosure sale pursuant to the same shall not constitute an assignment or transfer under this paragraph.
- A.9 The provisions of this Comprehensive Permit Decision and Conditions shall be binding upon the successors and assigns of the Applicant, and the obligations shall run with the land. In the event that the Applicant sells, transfers, or assigns its interest in the development, this Comprehensive Permit shall be binding upon the purchaser, transferee, or assignee and any successor purchasers, transferees or assignees. The applicable limited dividend restrictions shall apply to the owner of the project regardless of sale, transfer, or assignment of the project.
- A.10 The sidewalks, driveways, roads, utilities, drainage systems, and all other on-site infrastructure shown on the Approved Plans as serving the Project shall remain private in perpetuity, and the Town shall not have, now or in the future, any legal responsibility for the operation or maintenance of the infrastructure, including but not limited to snow removal, landscape maintenance, and hydrant maintenance. In this regard, the proposed site access ways within the Project shall not be dedicated to or accepted by the Town.
- A.11 Unless otherwise indicated herein, the Board may designate an agent to review and approve matters on the Board's behalf subsequent to this Decision.

B. Affordability

- B.1 Except as may otherwise be allowed by the Subsidizing Agency (MassHousing or other Subsidizing Agency), pursuant to the applicable subsidy program, a minimum of twenty-five percent (25%) or thirteen (13) of the home ownership shall be reserved for income-eligible households, meaning that they shall be sold to and occupied by households, as proposed by the Applicant, whose income (adjusted for household size) is not more than eighty percent (80%) of the Area Median Income (“AMI”), as determined by the United States Department of Housing and Urban Development (“HUD”) and the Subsidizing Agency (the “Affordable Units”). Affordable Units shall be dispersed throughout the Project in accordance with the guidelines of the Subsidizing Agency. The Board acknowledges that affordable unit location is an issue within the exclusive jurisdiction of the Subsidizing Agency.
- B.2 All of the Project’s Affordable Units shall be restricted for sale to households earning no more than the maximum allowable household income, adjusted for household size, as determined by MassHousing or any substitute Subsidizing Agency. The Affordable Units shall be maintained as affordable in perpetuity, which for the purposes of this Decision shall mean for so long as the Property does not comply with applicable zoning requirements without the benefit of this Comprehensive Permit.
- B.3 The Applicant shall obtain approval by the Subsidizing Agency of an Affirmative Fair Housing Marketing Plan (“AFHMP”) prior to the sale of any Affordable Units, and shall ensure that the Project complies with the Subsidizing Agency’s Fair Housing requirements.
- B.4 For the initial sale of the units in the Project, the maximum number of Affordable Units allowed by law that may be subject to a local preference is seventy percent (70%), if approved by the Subsidizing Agency. The Board chooses not to implement any local preference, recognizing the regional need for affordable housing is paramount.

C. Submission Requirements

- C.1 Prior to any construction or site development activities (including site clearing, tree removal, grading, etc.) on the Property, whether or not pursuant to a building permit (except as allowed by the Director of Planning and Community Development, as noted below), the Applicant shall:
- a. Deliver to the Board a check in a reasonable amount determined by the Director of Planning and Community Development to be used for staff to retain outside experts, only if necessary because town staff lacks the necessary expertise and state law does not require the building contractor

to provide the inspection information, for and technical ~~reviews and inspections~~ review and inspection are required under these conditions but at inception shall not exceed \$6,500 unless an alternate amount has been agreed upon by the Board and the Applicant. Said funds shall be deposited by the Board in an account pursuant to G. L. c. 44, § 53G and shall only be used for technical reviews and inspections associated with this Project. Any unspent funds shall be returned to the Applicant with accrued interest at the completion of the project. If at any time the Board reasonably determines that there are insufficient funds to cover the costs of technical reviews, it shall inform the Applicant and the Applicant shall forthwith deliver additional funds as specified by the Board in a reasonable amount as may be determined by the Board. Said funds may be used by the Board to hire civil engineering, traffic engineering, and/or other professionals that the Board deems reasonably necessary to ensure compliance with the conditions hereof.

- b. Obtain and file a copy of a National Pollution Discharge Elimination System (NPDES) Permit from the U.S. Environmental Protection Agency (EPA), if necessary. The Board shall also be provided a copy of the Stormwater Pollution Prevention Plan (SWPPP) submitted along with ~~the~~ any NPDES filing.
- c. Submit to the Board for review and administrative approval Final Engineering Drawings and Plans (“Final Plans”), such approval to be that the plans conform to the requirements of this Comprehensive Permit and incorporate the relevant conditions herein. The Final Plans shall also incorporate all relevant conditions and requirements of permitting agencies having jurisdiction. Applicable sheets of the Final Plans shall be signed and sealed by the Professional Land Surveyor of record, the Professional (Civil) Engineer of record, and a Registered Landscape Architect. Final Architectural Plans shall be stamped by a Registered Architect. The Final Plans shall be submitted to the Board at least ~~forty-five (45)~~ thirty (30) days prior to the anticipated date of commencement of building construction or submission of an application for building permits, whichever is earlier (the “Final Site Plan Submission Date”).
- d. Submit to the Board for its administrative approval, a landscaping plan with the Final Plans, signed and sealed by a Registered Landscape Architect, depicting the following:
 - i. Overall planting plan that includes a demarcation of clearing and the limits of work;

- ii. Planting plans for drives showing shade trees and lighting fixture locations;
- iii. Plans of walkways in open space and recreation areas, if any;
- iv. Prototype planting plans for each building;
- v. Prototype screening plans for dumpsters, depicting plantings and fencing;
- vi. Planting schedules listing the quantity, size, height, caliper, species, variety, and form of trees, shrubs, and groundcovers;
- vii. Tree protection and preservation plans
- vii. Construction fencing along abutting property lines; and
- ix. Construction details.

All plantings shall consist of native, non-invasive, drought-tolerant species. Plantings installed along drives and walkways shall also be salt-tolerant. Twelve (12) months after completion of plantings, the Applicant shall remove and replace any dead or diseased plantings and trees serving as screening. The Condominium documents shall address ongoing maintenance of landscaping features.

- e. ~~Submit to the Director of Planning and Community Development a construction mitigation plan including, but not limited to, dust control measures, fill delivery schedules, stockpiling areas, and like matters.~~
Other than site work and such other work as may be authorized in writing by the Director of Planning and Community Development, no other construction of units shall commence and no building permits shall be issued under this Comprehensive Permit until the Director of Planning and Community Development and other applicable staff has approved the Final Plans as being in conformance with this Decision. If no written response or comments have been given to the Applicant by the Building Commissioner and/or Director of Planning and Community Development concerning the Final Site Plans within forty-five (45) days after the Final Site Plan Submission Date, the Final Plans, as delivered, will be deemed to have been approved.

- f. The Applicant shall include on the Final Plans all of the various changes that have occurred during the hearing process. These plans should reflect site plan changes including but not limited to surface parking, proposed grading, stormwater systems, garage elevation, and other relevant site features.

~~g. The Final Plans shall show designated snow storage areas.~~

- ~~g.~~ h. The Applicant must provide notification to the Arlington Assessor's Office for address and unit numbering.

C.2 Prior to the issuance of any building permits, the Applicant shall:

- a. Record this Comprehensive Permit ~~and the Subdivision Plan~~ endorsed by the Board with the Middlesex South Registry of Deeds, at the Applicant's expense, and provide proof of such recording with the Board.
- b. Submit to the Board and the Director of Planning and Community Development evidence of Final Approval from the Subsidizing Agency (MassHousing), as required by the Project Eligibility letter and the Chapter 40B regulations.
- c. Submit to the Board a copy of the Regulatory Agreement and Monitoring Services Agreement for the Project. Execution and recording of such Regulatory Agreement with DHCD shall be complete prior to the issuance of any building permit. It is understood and agreed that Monitoring provisions may be included with the Regulatory Agreement, in lieu of a separate Monitoring Services Agreement.
- d. Submit to the Building Commissioner final Architectural Plans prepared, signed and sealed by an architect with a valid registration in the Commonwealth of Massachusetts ("Architectural Plans"). The Architectural Plans shall be submitted in such form as the Building Commissioner may request pursuant to the State Building Code.
- e. An automatic sprinkler system conforming with NFPA 13 and a fire alarm system conforming to NFPA 72 shall be required in all residential buildings. Both systems shall be monitored by a UL approved central station monitoring service.
- f. Obtain and file with the Building Commissioner a copy of all required Federal, State, and local permits and approvals required to begin construction of the Project.

- g. Obtain all necessary building, electrical, plumbing, and associated permits required to begin construction of the Project required by state law (it is understood that compliance with this requirement is part of the building permit process, rather than required prior to the issuance of building permits).

~~h. The Applicant will be responsible for all applicable sewer permit, capacity impacts and privilege fees, as applicable.~~

h. ~~i.~~ The Applicant will be responsible for all applicable water and sewer connection and system fees as per officially promulgated fee schedules uniformly applicable to all other Town of Arlington projects. There are currently no capacity impacts and privilege fees (sometimes referred to as I & I fees) required, and if later adopted, such fees shall not be applicable to this Project.

i. ~~j.~~ The Applicant shall perform additional test pits at the proposed stormwater basins to confirm groundwater elevations. These test pits shall be done during seasonal high groundwater conditions and shall be witnessed by the Town and/or its agent.

D. Construction Completion/Certificate of Occupancy

D.1 Prior to issuance of a certificate of occupancy for any structure in the Project, the Applicant shall:

- a. Submit engineer's interim certification of compliance with utilities plan and profiles for such Phase (as applicable) to the Building Commissioner.
- b. Provide a letter to the Board, signed by the Applicant's civil engineer, certifying that the structure and supporting infrastructure has been constructed in compliance with the Final Plans in all material respects.
- c. Obtain acceptance from the Arlington Fire Department of testing of all fire protection systems, fire alarm systems, fire sprinkler systems, and local smoke alarms within the dwelling units of the structure.
- d. Obtain a sewer connection sign-off from the Arlington Department of Public Works for the structure.

D.2 Prior to issuance of the certificate of occupancy for the Project, the Applicant shall:

- a. Submit to the Board, in digital file format and full-size paper copies, a final as-built plan including profiles, showing actual-in ground installation of all applicable utilities, rim and invert elevations, roadway, sidewalk and associated construction. The file format shall be in AutoCAD file delivery shall be in full model view and individual sheet views. The digital file shall include property boundaries, dimensions, easements, rights-of-way, edge of pavement, edge of sidewalk, edge of water bodies, wetland boundaries, topographic contours, spot elevations, parking areas, road centerline and associated text. Said digital data shall be delivered in the Massachusetts State Plane Coordinate System, North American Datum 1983 and North American Vertical Datum 1988, in U.S. Survey Feet.

~~b. — The Applicant shall provide to the Board evidence of a property management plan (if property management will be done in-house), or shall provide a copy of a contract with a Management Company if property management will be conducted by a third party. The Applicant shall submit to the Board all information relating to the issues of building security, public access, pet policy, staffing, trash removal, and smoking policies, and other issues addressed in the conditions herein.~~

- eb. Submit to the Board, for review by its Counsel, a copy of the Condominium Association Master Deed and Rules and Regulations. ~~At minimum, the Condominium Association Documents shall address issues relating to public access, snow removal, trash removal, and other issues addressed in the conditions herein.~~ to insure such documents contain a reference that the Condominium is subject to this Decision and, identify the following continuing conditions after the receipt of an occupancy permit:

- (i) Section I: 7,8,9,13,14 and 16
(ii)

E. Project Design and Construction

- E.1 Prior to the commencement of any work on the Property, the Applicant and the site general contractor shall attend a preconstruction conference with representatives from the Arlington Fire Department, the Department of Public Works (Arlington Water and Sewer Division and Engineering Division), Planning and Community Development and other Town staff and consultants as may be determined. ~~The Applicant and the site general contractor shall host a meeting open to all members of the public to review the construction schedule, hours, policies, procedures, and other neighborhood impacts at least fourteen (14) days prior to the start of construction.~~

~~E.2 Prior to the pre construction conference, the Applicant shall submit a Construction Management Plan (“CMP”) for administrative approval by the Board. The CMP shall provide documentation of various construction related activities, including:~~

- ~~1. A Project Description and outline of primary construction tasks,~~
- ~~2. A Project Schedule including hours of operation, duration of primary construction tasks and estimated completion date,~~
- ~~3. Project logistics, including staging areas, truck routes, laydown areas, contractor parking, and construction traffic management,~~
- ~~4. Site Management including noise mitigation, dust control and security,~~
- ~~5. Public Safety and Coordination, including contact information and site inspections.~~

E.2 The construction management plan (“CMP”) attached hereto as Exhibit B has been reviewed and approved and construction of the Project shall be performed in compliance with the CMP.

~~E.2~~ E.2 Upon reasonable notice and subject to construction activity, the Applicant shall permit representatives of the Board to observe and inspect the Property and construction progress until such time as the Project has been completed and the final occupancy permit issued.

E.3 The proposed construction shall be in accordance with applicable Federal and State laws, rules and regulations.

E.4 All site retaining walls four (4) feet or greater in height shall be designed by a Massachusetts Professional Structural Engineer.

E.5 During construction, the Applicant shall conform to all local (except as waived herein), State, and Federal laws and provide advance notice to abutters per the Town’s Residential Construction Control Agreement regarding noise, vibration, dust, and blocking of Town roads in order to accommodate delivery of materials to the site or for other construction staging purposes. The Applicant shall at all times use all reasonable means to minimize inconvenience to residents in the general area. Adequate provisions shall be made by the Applicant to control and minimize dust on the site during construction in accordance with the construction mitigation plan. The Applicant shall keep all portions of any public way used as access/egress to the Project free of soil, mud or debris deposited due to use by construction vehicles associated with the Project.

- E.6 Appropriate signage shall be shown on the Final Plans, consistent with the sign information shown on the Approved Plans. A temporary sign including the name and address of the project and contact information for the Applicant, general contractor, engineers, architect, and other relevant parties shall be posted on site for the duration of construction operations.
- E.7 The location of all utilities, including but not limited to electric, telephone, and cable, shall be shown on the Final Plans. All transformers and other electric and telecommunication system components shall be included on the Final Plans.
- E.8 The Applicant shall use electric heat and hot water for the Project, if reasonably available at the time of the submission of Final Plans.
- E.9 The Applicant shall install lighting on the site that conforms to the Town of Arlington's Zoning Bylaw and Town Bylaw. Lighting shall be down-lit/shielded to prevent light spillover onto surrounding properties and comply with dark sky requirements. Management of outdoor lighting shall be the responsibility of the Applicant.
- E.10 Utilities, including but not limited to telephone, electric, and cable, shall be located underground. The general contractor shall be responsible for coordinating all subsurface work with Dig Safe prior to the commencement of any excavation.
- E.11 Soil material used as backfill for pipes, access drives, or structures shall be certified by the Geotechnical Engineer to the Building Commissioner as meeting design specifications, as applicable.
- E.12 The Applicant shall test the soil during construction to confirm soil types in the areas of the infiltration system. Such testing shall be witnessed by the Board's designee. All unsuitable material, if any, discovered in excavation for the infiltration system shall be removed and disposed of in accordance with State and local regulations.

- E.13 Construction activities shall be conducted between the hours of ~~8:00~~-7:00 a.m. and 6:00 p.m., Monday through Friday and between the hours of ~~9:00~~-8:00 a.m. and 5:00 p.m. on Saturdays, Sundays, or legal holidays. For purposes of this condition, construction activities shall be defined as: start-up of equipment or machinery, delivery of building materials and supplies; delivery or removal of equipment or machinery; removal of trees; grubbing; clearing; grading; filling; excavating; import or export of earth materials; installation of utilities both on and off the site; removal of stumps and debris; loading of construction dumpsters and erection of new structures. All off-site utility work shall be coordinated and approved by the Building Department and shall not be subject to the timing restrictions set forth above. Parking of all vehicles and equipment must be on the Property during construction.
- E.14 Burning or burial of construction or demolition debris on the site is strictly prohibited. All such materials are to be removed from the site in accordance with applicable law. During construction, the site shall be secured against unauthorized entry or vandalism by fencing, or other appropriate means, and all construction materials shall be stored or stockpiled in a safe manner. Any floodlights used during the construction period shall be located and directed so as to prevent spillover or illumination onto adjacent properties. All construction activities are to be conducted in a workmanlike manner.
- E.15 No building areas shall be left in an open, unstabilized condition longer than sixty (60) days. Temporary stabilization shall be accomplished by hay bales, hay coverings or matting. Final stabilization shall be accomplished by loaming and seeding exposed areas.
- E.16 All dumpsters serving the Project shall be enclosed and covered (with the exception of construction dumpsters used during construction). The Board shall review the dumpster location as part of the approval of the Final Plans if different from what has been shown on the Approved Plans.
- E.17 All retaining walls visible from a public way or direct abutters, as determined by the Building Commissioner based upon the time of year when such walls would be most visible, shall be constructed in an aesthetic manner. Specifically, retaining walls shall avoid the use of exposed concrete [similar to a foundation wall](#) to the greatest extent practicable.
- E.18 Snow shall be stored within the areas of the Property designated on the Approved Plans. To the extent snowfall exceeds the capacity of the designated snow storage areas, the Applicant shall truck the excess snow off-site. Snow may not be placed in or adjacent to resource areas.

- E.19 The Applicant shall comply with all applicable local, state and federal requirements relating to noise from construction activities, including the regulations contained at 310 CMR 7.10 and the DEP's Noise Policy contained in DAQC Policy 90-001 as well as the Arlington Noise Abatement Bylaw contained at Title V, Section 12. The Applicant shall also implement all necessary controls to ensure that vibration from construction activities does not constitute a nuisance or hazard beyond the Property. Upon notification from appropriate municipal officials, the Applicant shall cease all construction activities creating noise in excess of state and federal standards, and shall implement such mitigation measures as is necessary to ensure the construction activity will comply with applicable State and Federal requirements.
- E.20 The Applicant is responsible for the sweeping, removal of snow and sanding of the internal roadways and driveways providing access to both the residents of the Project and emergency vehicles. Neither snow nor sand may be placed in or adjacent to resource areas.
- E.21 The Applicant shall maintain all portions of any public road, whether state or local roads, used for access to the Property by construction vehicles, free from soil, mud or debris deposited due to such use during the duration of construction.
- E.22 The Applicant shall comply with DPW requirements regarding curb-cut permits.
- E.23 ~~To the extent~~ If other than routine earth removal associated with construction of footings and foundation walls and excavation for the basement area, is necessary, the Applicant shall prepare an earth removal plan, showing all necessary cuts and fills, and describing the number of truck trips necessary for the earth removal.
- E. 24 All catch-basins that will receive runoff from vehicles shall have oil/water separators as shown on the Approved Plans.
- E. 25 Project sidewalks and pathways/walkways shall be compliant with the requirements of the Americans with Disabilities Act ("ADA") and the requirements of the Massachusetts Architectural Access Board ("AAB").
- E. 27 This Comprehensive Permit shall be a master permit which is issued in lieu of all other local permits or approvals that would otherwise be required, except for the issuance of Building Permits and Certificates of Occupancy by the Building Department under the State Building Code; provided, however, the Applicant shall pay all local fees for such permits or approvals as published in the Town regulations or bylaws, including but not limited to building permits, inspections, water and sewer connections, and curb cuts.

E.28

F. Traffic/Traffic Safety Conditions / Sidewalks

- F.1 Site access will be provided via Massachusetts Avenue.
- F.2 The Applicant shall install all proposed traffic signs and pavement markings shown on the approved final plans. Signs and markings shall conform to the Manual on Uniform Traffic Control Devices (MUTCD), latest edition and other applicable state or local requirements.
- F.3 The proposed site provides fifty ~~(50)~~ one (51) parking spaces in a ~~combination of structured-garage spaces and surface parking spaces~~. No changes to the number, configuration or designation of parking spaces shown on the final approved plans shall be made unless approved by the Board through a modification process.
- F.4 The Applicant shall ensure that emergency ~~vehicles~~ personnel can adequately maneuver through the site. The Arlington Fire Department shall review the Final Plans to ensure compliance with this condition.
- F.5 The Applicant shall provide ~~75~~ 75 long-term bicycle parking spaces that are covered and secure.
- F.6 The Applicant shall provide ~~5~~ 5 outdoor short-term bicycle parking spaces. These spaces shall be near a location of public building access, such as the courtyard area.
- F.7 The Applicant shall provide new residents with transportation information packets with information on getting around Arlington sustainably.
- F.8 The Applicant shall provide electric vehicle charging stations at 5% of the parking spaces in the garage. The Applicant shall provide for the expansion of the number of charging stations in accordance with tenant demand.

G. Police, Fire, and Emergency Medical Conditions

- G.1 The Condominium Association shall provide ~~professional property management and maintenance personnel on the premises during typical business hours and an~~ emergency contact name and number for representative of the unit owners ~~and to~~ the Arlington Police Department and Fire Department.
- G.2 Stairwells and garages must be two-hour fire rated. Residential units must be one-hour fire rated.

- G.3 The residential structure shall be fully sprinklered to NFPA regulations.
- G.4 Compliance with all State Building Code and NFPA requirements relating to fire access and safety shall be met.
- G.5 All elevators must have emergency generator backup.
- G.6 The Project shall maintain fire [personnel](#) access to all four sides of the residential structure at all times.
- G.7 The Project shall provide adequate external lighting to ensure safety of the residents of the Project. External lighting shall conform to the requirements of the local Regulation of Outdoor Lighting [Title V, Section 14].
- G.8 During times of construction, the Project, including all structures shall be accessible to Fire Department and other emergency vehicles. Additionally, all hydrants shall be operational during construction in accordance with NFPA requirements. ~~Standpipes shall be operational on each floor during construction, as required by the Building Code and the Fire Department.~~
- G.9 The Applicant shall consult with the Fire Department prior to the commencement of construction to provide an on-site emergency plan, which shall be updated as necessary throughout the construction process.

H. Water, Sewer and Utilities

- H.1 The Applicant shall be responsible for the design and installation of the utilities servicing the Project.
- H.2 All water and sewer infrastructure shall be installed in conformance with the Arlington Water and Sewer Division's technical requirements. The Applicant shall provide the Arlington Water and Sewer Division with calculations to ensure the distribution system for the area has the necessary capacity to meet system demand required prior to the commencement of construction.
- H.3 Fire hydrants shall be placed as shown on the Approved Plans in locations approved by the Arlington Fire Department. If the Arlington Fire Department approves different hydrant locations, such modification shall be accepted administratively as an insubstantial change pursuant to 760 CMR 56.05(11).

- H.4 The service size for the domestic water service should be verified by the Arlington Water and Sewer Division and information on the fire service size and requirements should be verified by the Arlington Fire Department. The Applicant shall submit information regarding the size of both the domestic and fire services as part of Final Plans, after consultation with the Arlington Water and Sewer Division. ~~The Applicant shall replace the water main, hydrants and gate valves.~~ Any connections to the Town water main shall be triple-gated and a tee connection.
- H.5 The water and sewer utilities servicing the buildings in the Project shall be installed and tested in accordance with applicable Town requirements and protocols, except as may be waived herein.
- H.6 Utilities shall be installed underground by the Applicant using methods standard to those installations. Utilities shall be defined as electric service lines, telephone lines, water service lines, CATV lines, municipal conduit and the like. The Applicant shall request a Grant of Location from the Select Board for any installation of new utility poles or underground conduit in the public right of way as needed.
- H.7 The Applicant shall be responsible for all trash and recycling removal from the Property. The Town of Arlington shall not have any responsibility for trash, recycling, compost, and/or yard waste pickup at the Property.

~~H.8 Fire hydrants shall remain private, and shall be maintained by the Applicant.~~

I. Wetlands/Floodplain/Environmental Conditions

- I.1 Prior to the commencement of construction, erosion control measures shall be installed consistent with the Approved Plans.
- I.2 No uncovered stockpiling of materials shall be permitted within the 100 foot Wetland Buffer Zone or Adjacent Upland Resource Areas (“AURA”) or other resource areas.
- I.3 No dumpsters shall be allowed within the AURA or other Resource Areas.
- I.4 No heavy equipment may be stored within the AURA of other Resource Area.
- I.5 Any dirt or debris spilled or tracked onto any paved streets shall be swept up and removed daily.

- I.6 The Applicant must retain a professional engineer to oversee the installation of the stormwater management system. A stormwater mitigation report must be submitted to the ZBA within 10 days of the completion of the stormwater management system. The stormwater report shall include as-built plans, photographs from installation, and a written summary of the installation of the stormwater management system and stormwater best management practices.
- I.7 To avoid adding excess nitrogen runoff, the Applicant shall only treat the planted areas within resource areas with slow release nitrogen fertilizer. Application of this fertilizer cannot occur in the summer, or after storm events. Lawn fertilizer shall only be applied twice a year, in spring and fall. The application of plant nutrients shall otherwise comply with 330 CMR 31.00. No other herbicides or treatment methods are approved. No pesticides or rodenticides shall be used to treat pest management issues within Resource Areas. These shall be continuing conditions in perpetuity that survives the expiration of this permit.
- I.8 Pervious surfaces shown on the project plans shall be maintained as specified in the stormwater report and logs/reports shall be maintained by the Applicant. Pervious surfaces shown on the project plans shall not be replaced by impervious surfaces. This shall be a continuing condition in perpetuity that survives the expiration of this permit.
- I.9 No snow storage is permitted within the AURA or other Resource Areas. A snow storage plan shall be submitted to the ZBA prior to construction completion. If these areas are insufficient for storage during the snow season, snow shall be removed from the site. Sediments and debris shall be removed from snow storage areas in the early spring. This shall be a continuing condition in perpetuity that survives the expiration of this permit.
- I.10 The Applicant shall protect all adjacent catch basins using silt socks during construction.
- I.11 The Applicant shall conduct catch basin sump cleanings at the end of the project work period.
- I.12 The Applicant shall submit copies of the SWPPP inspection reports to the ZBA within 10 days of the date of each report.
- ~~I.13 The Applicant shall submit for review and approval by the ZBA an invasive management plan for work in the AURA and other Resource Areas outlining all locations for invasive management, the species and quantities of invasive plants to be managed, and the method of management.~~

~~I.14~~I.13 All mitigation plantings and all plantings within resource areas shall be native and be installed and maintained according to the standards of the American Association of Nurserymen (AAN). No cultivars of native plantings shall be allowed. This shall be a continuing condition in perpetuity that survives the expiration of this permit. An irrigation system shall be installed to provide adequate and appropriate water for the plantings.

~~I.16~~I.14 All plantings planted and invasive species removed through this project in Resource Areas or as mitigation on site shall be initially monitored for three years. ~~A~~The off-site enhancement on the Mill Brook condominium property shall be monitored for two years. After installation is complete a monitoring report shall be submitted annually ~~in June~~by November 15th for the three year ~~and two~~year monitoring ~~period~~periods, reporting on the health of the new plantings and the success of the invasive plant management. The annual report shall identify any plantings that did not survive and summarize the replacement of the plantings. A survival rate of 80% must be achieved at the end of the third monitoring year. If there is less than a 80% survival rate of the plantings after the third year, the Applicant must submit recommendations for replacements to the ZBA for approval. After the initial three year monitoring period for the on-site restored woodland, annual monitoring reports will be provided to the Arlington Zoning Board of Appeals and Conservation Commission by November 15th of every year for an additional 7-year monitoring period so that the monitoring period is 10 years after installation of the restored woodland. These additional monitoring reports will describe the condition of the restored woodland, overview the management efforts undertaken over the past growing season (such as plant replacement, invasive species management, etc.), and describe the anticipated management efforts required for the subsequent growing season so that the restored woodland successfully matures as designed. These additional monitoring reports shall include representative photographs of the restored woodland from photographic stations established within the woodland, such that year to year images can be compared.

Regarding invasive species management, the restored woodland and off-site Riverfront Area restoration shall be managed for invasive species during their respective monitoring periods to determine if any invasive/exotic plants included on the Invasive Plant list provided by the Massachusetts Invasive Plants Advisory Group have colonized the restored woodland and/or off-site Riverfront Area restoration on the Mill Brook Condo property. Specifically, these areas shall be evaluated once annually during the late spring/early summer to detect invasive exotic plants prior to seed production.

Observed invasive plants shall be removed from the site either by hand or with hand tools (shovels, weed wrenches, etc.) to the extent practicable and appropriately disposed of off-site. If non-mechanical removal is not practical, then the stem shall be cut flush to the ground in the late summer prior to seed production, and the cut stem shall immediately be painted or dabbed with glyphosate by a certified herbicide applicator.

Upon removal of invasive shrubs or saplings, if necessary, native shrubs or saplings from the approved restoration planting plan shall be installed to adequately re-vegetate the exposed area. Replacement native shrubs or saplings shall be selected based on the size and type referenced for the area on the approved restoration plan, or functional equivalent native shrub or sapling at the discretion of the landscape architect or wetland scientist conducting the annual monitoring and overseeing the management efforts.

Upon the removal of native groundcover plants or perennials, the native seed mixture referenced on the approved restoration planting plan shall be applied to the managed area and raked in per the manufacturer's specifications.

In creating the initial Condominium annual budget, and for the annual budgets thereafter, the Applicant or Condominium Association, as applicable, shall include a separate line item in the budget for the anticipated expenses relating the satisfying the obligations of this condition.

~~I.47~~I.15 The Applicant shall protect all area trees that will remain on the property per the Town Wetlands Protection Regulations, Section 24 Vegetation Removal and Replacement, protecting trees through securing (not nailing) 2x4 boards, between 6-8 feet in length, around tree base. The boards shall be installed vertically such that one end is installed directly into the ground. Alternative protection measures must be approved by the ZBA.

~~I.48~~I.16 All on-site mitigation as proposed as part of this project shall remain in perpetuity. The approved planting areas, invasive removal areas, the water quality units, and the stormwater system shall remain in perpetuity and if replacement is necessary, shall be subject to the approval of the Commission. This shall be a continuing condition in perpetuity that survives the expiration of this permit.

J. Other General Conditions

- J.1 This Decision will be deemed to be final upon the expiration of the appeal period with no appeal having been filed or upon the final judicial decision following the filing of any appeal, whichever is later, as per 760 CMR 56.05(12)(a). In accordance with 760 CMR 56.05(12)(c), this Comprehensive Permit shall expire three (3) years from the date that the permit becomes final, unless (i) prior to that time construction authorized by the Comprehensive Permit has commenced or (ii) the time period is otherwise tolled in accordance with law. The Applicant may timely apply to the Board for extensions to the Comprehensive Permit as permitted by law.
- J.2 The Applicant shall comply with all local regulations of the Town and its boards, commissions, and departments unless specifically waived herein or as otherwise addressed in these conditions.
- J.3 The Applicant shall copy the Board on all correspondence between the Applicant and any federal, state, or Town official, board, or commission concerning the conditions set forth in this Decision, including but not limited to all testing results, official filings, environmental approvals, and other permits issued for the Project.
- J.4 This Decision prohibits the parking or storage of any unregistered vehicle on the site, and likewise prohibits the service of any vehicles on the site, except during construction. Overnight parking of vehicles on public ways ~~is prohibited in the~~ shall be in accordance with Town of Arlington by-laws and regulations.
- J.5 In the event that the Condominium Association (or its Management Company) fails to maintain the stormwater management system for the Project in accordance with its operation and maintenance plan, within fourteen (14) days of notification by the Town to the Condominium Association/Management Company, the Town may conduct emergency maintenance and/or repair, as it deems necessary, and the Applicant shall, prior to the issuance of any certificates of occupancy, convey such easement or other rights in a form mutually acceptable to the Town and the Applicant as may be reasonably necessary to complete such repair and/or maintenance. In the event the Town opts to perform such maintenance in accordance with this paragraph, the ~~Applicant~~ Condominium Association shall reimburse the Town within forty-five (45) days for all of its reasonable expenses related to such work.
- J.6 The Project entrance way and interior roads, and drainage systems associated therewith shall remain private, and the Town shall not have any legal responsibility for the operation and maintenance of such. The Town shall also have no obligations relating to the proposed recreational areas on the Property, the construction and operation of which shall be the sole responsibility of the Applicant.

- J.7 If any default, violation or breach of these conditions by the Applicant is not cured within thirty (30) days after notice thereof (or such longer period of time as is reasonably necessary to cure such a default so long as the Applicant is diligently and continuously prosecuting such a cure), then the Town may take one or more of the following steps: (a) enforcement by the Zoning Enforcement Officer pursuant to G. L. c. 40A, § 7; (b) by mandamus or other suit, action or other proceeding at law or in equity, require the Applicant to perform its obligations under these conditions; or (c) take such other action at law or in equity as may appear necessary or desirable to enforce these conditions. If the Town brings any claim to enforce these conditions, and the Town finally prevails in such claim, the Applicant shall reimburse the Town for its reasonable attorneys' fees and expenses incurred in connection with such claim.

DECISION

In consideration of all of the foregoing, including the plans, documents and testimony given during the public hearing, the Board hereby grants the Applicant a comprehensive permit for the construction of fifty (50) home-ownership condominium units in a single structure, along with approximately ~~935~~ 1700 square feet of commercial space, pursuant to Chapter 40B, §§ 20-23, for the development described above.

RECORD OF VOTE

The Board of Appeals voted _____, at its public meeting on _____, 2023, to grant a Comprehensive Permit subject to the above-stated Conditions, with this Decision as attested by the signatures below.

Decision on Application for Comprehensive Permit
1025 Mass Ave, LLC
1021-1025 Massachusetts Avenue, Arlington, MA
April __, 2023
Page 29 of 32

Dated: _____, 2023

Filed with the Town Clerk on _____, 2023.

Town Clerk

Notice: Appeals, if any, by any party other than the Applicant, shall be made pursuant to Massachusetts General Laws, Chapter 40A, s. 17, and shall be filed within twenty (20) days after the filing of this notice in the Office of the Town Clerk, Town Hall, Groveland, Massachusetts. Any appeal by the Applicant shall be filed with the Housing Appeals Committee pursuant to G. L. c. 40B, § 23, within twenty (20) days after the filing of this notice in the Office of the Town Clerk.

DECISION ON WAIVERS [\[SEE UPDATED WAIVER REQUEST LIST\]](#)

The Board takes the following action on the waiver requests of local rules and regulations submitted by the Applicant as it has determined necessary for the construction of the Project as approved by the Board:

1. Zoning Bylaws Article 5, Section 5.5.3 – This section prohibits multi-family use in the underlying zoning district. The Applicant requests a waiver of this section to allow the proposed Project consisting of fifty (50) multi-family home-ownership condominium units and associated ~~935~~-1700 square feet of commercial space.

Board Action: Waiver Granted.

2. Zoning Bylaws Article 5, Section 5.5.2 – This section requires a minimum front yard setback of twenty feet (20'). The Applicant requests a waiver to allow a minimum front setback of seventeen feet (17').

Board Action: Waiver Granted.

3. Zoning Bylaws Article 5, Section 5.5.2 – The Applicant also requests a waiver of the maximum height requirement of this section, which limits the height of structures to three (3) stories and thirty-five feet (35'). The Applicant requests a waiver to allow a structure containing five (5) stories and a building height of sixty-six feet four inches (66'4").

Board Action: Waiver Granted.

4. Zoning Bylaws Article 5, Section 5.5.2 – The Applicant also requests a waiver of the Floor Area Ratio (FAR) requirement in this section, which limit FAR to a maximum of .75. The Applicant requests a waiver to allow a FAR of 2.0.

Board Action: Waiver Granted.

5. Zoning Bylaws Article 6, Section 6.1.4 – This Section requires 1.15 parking spaces per one-bedroom unit, 1.5 spaces per two-bedroom unit and two spaces per units having three or more bedrooms. The Applicant requests a waiver to allow a total of fifty (50) parking spaces for the proposed fifty (50) condominium units and associated ~~935~~-1700 square feet of commercial space.

Board Action: Waiver Granted.

6. Bicycle Parking Design Guidelines – These Guidelines do not allow hanging bike spaces to count toward the minimum number of required bike spaces. The Applicant requests a waiver to allow forty-nine (49) bicycle storage units in the basement and twenty-six (26) hanging bicycle spaces in the garage.

Board Action:

7. Town Bylaws, Title V, Article 16, Sections 2 and 4 (Tree Protection and Preservation) – The Applicant requests a waiver of the requirement to make a payment to the tree fund for removal of protected trees, in lieu of the riverfront restoration proposed in the Approved Plans.

Board Action: Waiver Granted.

8. Town Bylaws, Title V, Article 8 (Wetlands Protection) – The Applicant requests a waiver of the procedural requirement of obtaining an Order of Conditions from the Arlington Conservation Commission. No substantive waivers of the Wetlands Protection Bylaw was requested.

Board Action: Waiver Denied as Unnecessary. Pursuant to G. L. c. 40B, §§ 20-23, a comprehensive permit subsumes all local permitting requirements. Accordingly, this comprehensive permit includes an Order of Conditions under the local bylaw, thus no waiver is required.

9. Town Bylaws, Title V, Article 15 (Stormwater Management) – The Applicant requests a waiver of the procedural requirements of obtaining approval of a stormwater management plan. No substantive waivers of this article are requested.

Board Action: Waiver Denied as Unnecessary. Pursuant to G. L. c. 40B, §§ 20-23, a comprehensive permit subsumes all local permitting requirements. Accordingly, this comprehensive permit includes approval of the stormwater management plans under the local bylaw, thus no waiver is required.

10. Arlington Historical Commission – The Applicant notes that the structure at 1021 Massachusetts Avenue is listed on the Historic Structures Inventory, requiring a determination from the Arlington Historical Commission whether the structure is preferably retained under the demolition delay bylaw. The Applicant requests that the Board determine that the structure is not required to go through the demolition delay process.

Board Action:

11. Town Bylaw Title V, Article 14 (Outdoor Lighting) – This bylaw prohibits uplighting. The Applicant requests a waiver to allow some uplighting as shown on the Approved Plans.

Board Action:

12. Sewer Inflow and Infiltration Fees – The Applicant requests a waiver of any applicable sewer inflow and infiltration fees.

Board Action: Waiver Granted.

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Pursuant to 760 CMR 56.05(2)(h), 1025 Mass Ave, LLC (hereinafter referred to as the "Applicant"), submits the following list of waivers, so-called, to "local requirements and regulations," including without limitation the Town of Arlington Zoning Bylaw, as amended, certain Town By-laws such as the Arlington Wetlands Protection Bylaw (Title V, Article 8 - "Wetlands Bylaw"), Article 16-Tree Protection and Preservation Bylaw, and other local regulations and requirements as defined in M.G.L. c.408, §56.02, including all local rules, ordinances, codes and regulations that are more restrictive than state requirements.

By-Law Regulation	Requirement	Proposed	Waiver
Zoning By-Jaw Article 5, Section 5.5.3	Multifamily/ Apartment use is not allowed as of right or by special permit.	Multi-Family use	Waiver requested. The property is located in the B1 Zone.
Zoning By-law Article 5, Section 5.5.2	The By-law requires a Front Yard Setback of 20 feet	The Applicant proposes a Front yard setback of 17 feet	Waiver requested, see Footnote 1
Zoning By-law Article 5, Section 5.5.2	The By-law requires a maximum height of 3 stories or 35 feet	The Applicant proposes a 5-story building with a proposed height of 66'-4"	Waiver requested, see Footnote 1
Zoning By-law Article 5, Section 5.5.2	The By-law allows for a maximum FAR of 0.75	The Applicant proposes a FAR of 2	Waiver requested, see Footnote 1
Zoning By-law Article 5, Section 5.3.17	The By-law requires for buildings in excess of three (3) stories in height, an additional seven and one half (7.5) foot step back for the upper beginning at the fourth (4th) story.	A set back of over 7.5 feet is provided at the fifth floor and no setback at the fourth Floor.	Waiver requested of upper floor set back requirement.
Zoning By-law Article 6, Section 6.1.4	The By-law requires 1.15 spaces per 1 bedroom unit, 1.5 spaces per 2 bedroom unit, and 2 spaces per 3 or more bedroom unit parking space per unit and 1 space per 300 sq ft of retail for a total of 57 spaces	The Applicant proposes 1 parking space per unit regardless of number of bedrooms and 1 retail space for a total of 51 spaces.	Waiver requested, see Footnote 2

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Zoning By-law Article 6, Section 6.1.12	The By-law requires a total of 52 bicycle parking spaces and certain design requirements	The Applicant proposes 50 bicycle parking spaces without full compliance with the design requirements	Waiver requested to provided bicycle parking spaces as shown on the project drawings.
Bicycle Parking Design Guidelines	The long-term bicycle storage design guidelines do not permit hanging bicycle storage.	The Applicant proposes 49 bicycle storage units in the basement & 26 hanging bicycle racks in the garage	Waiver requested, see Footnote 2
Town By-law, Title V, Article 16, Sections 2 and 4 Tree Protection and Preservation	These sections prohibit removal of "Protected Trees" unless removal is authorized through the approval of a Tree Plan. Construction and demolition require the approval of a Tree Plan prior to or concurrent with application for a building permit. Protected Trees require a payment to a Tree Fund.	The Applicant seeks to remove trees the majority of which are non-native species in order to construct the building and complete the riverfront restoration. The Applicant seeks that a Tree Plan approval be included in the comprehensive permit and a waiver of the payment lo the Tree Fund.	Waiver requested. Absent the removal of the trees, the project cannot be constructed. The payment to the tree fund effects the financial viability of the project, as significant dollars are already committed to the riverfront restoration plan on the property and along Mill Brook.
Town Bylaw Title V, Article 8 Wetlands Protection	The project is within Conservation Commission jurisdiction requiring an Order of Conditions	The Applicant seeks that the required Order of Conditions be included in the comprehensive permit	Waive requirement for an Order of Conditions to be issued by the Conservation Commission. Proposed development meets the performance standards for issuance of an Order of Conditions
Town Bylaw Title V, Article 15 Stormwater Management	The project requires a stormwater management approval	The Applicant seeks that the required stormwater management be included in the comprehensive permit	Waive requirement for a Stormwater Permit to be issued by the Town Engineer. Proposed development meets the performance standards for issuance of a Stormwater Permit
Town Bylaw Title V, Article 12 Noise Abatement	Project construction hours are 9:00 am to 5:00 pm on Saturdays and 8:00 am to 6:00 pm on weekdays.	The Applicant seeks project construction hours to be 8:00 am to 5:00 pm on Saturdays and 7:00 am to 6:00 pm on weekdays	Waive construction start time of 9:00 am on Saturdays and 8:00 am on weekdays.

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Arlington Historical Commission	1021 Massachusetts Avenue is listed on the Historic Structures Inventory	The Project requires the demolition of 1021 Massachusetts Ave	Waive requirement of demolition delay or waive requirement that the Arlington Historical Commission determine that the demolition of the building would not be detrimental to the historical or architectural heritage or resources of the Town and include such determination in the comprehensive permit.
Town Bylaw Title V, Article 14 Outdoor Lighting	Up-lighting is prohibited	The Applicant seeks some up-lighting on the Project	Waiver Requested from the up-lighting prohibition
Sewer inflow and infiltration fees	No formal requirement	No fee required	Waiver requested from request for inflow and infiltration fees by Engineering

1. Absent waivers of these zoning requirements, the proposed project would be uneconomical, would not result in the limited profit provided for in the regulations and the Applicant would be unable to secure financing for the construction of the proposed project.
2. The Applicant seeks a waiver of the required number of parking spaces and the required long-term bicycle storage design guidelines as the footprint of the building could not accommodate additional parking beyond what is provided in the table

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TOWN OF ARLINGTON

Zoning Board of Appeals

730 Massachusetts Avenue

Arlington, MA 02476

DECISION ON APPLICATION FOR COMPREHENSIVE PERMIT

G.L. c. 40B, §§ 20-23

APPLICANT: 1025 Mass Ave, LLC (“Applicant”)

PROPERTY: 1021 and 1025 Massachusetts Avenue, Arlington, MA (the “Property”)

ASSESSORS’ MAP: Assessors Parcel 055.0-0002-0019.0 and 055.0-0002-0020.0

DEVELOPMENT NAME: The Residences at Mill Brook

DATE: April __, 2023

I. PROCEDURAL HISTORY

1. An application for a Comprehensive Permit was received by the Town of Arlington Zoning Board of Appeals (“Board”) on or about September 20, 2022 (“Application”). The Application proposes the development of fifty (50) units of home ownership housing with associated parking in a single structure located at the Property (the “Project”).
2. The Board’s public hearing on the Application was duly opened on December __, 2022 (after the Applicant granted an extension of the thirty-day period to open the public hearing).
3. The Project is located on the Property, which is located at 1021-1025 Massachusetts Avenue, Arlington, Massachusetts. The Property is adjacent to the Residence 6 (R6) Zoning District as is abutted by an apartment building, a two family, and a condominium development known as Mill Brook located on approximately 1.08 acres of land.
4. The Property is located in the Business 1 (B1) Zoning District and is adjacent to the Residence 6 (R6) Zoning District. Abutting uses are an apartment building with 12 units, a two family building, and condominium building with 98 units, and other nearby uses consist of commercial and office uses.

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5. The Property consists of approximately 1.08 +/- acres. The Property currently contains two (2) existing structures on footprints comprising 11% lot coverage of the Property. Additionally, the Property contains significant pavement, covering approximately 25% of the Property, for a current total impervious area of 36%. No stormwater management structures are present on the Property to attenuate runoff from the existing impervious area.
6. The Applicant provided various materials, reports, studies, and revised plans throughout the course of the public hearing on the Application.
7. The Applicant proposes the fifty (50) home ownership condominium units in a single structure, of which a minimum of twenty-five percent (25%) will be restricted as affordable units as determined by the Subsidizing Agency. The Applicant also proposes approximately 1700 s.f. of ground-level commercial space.
8. During the public hearing, the Applicant was assisted primarily by its principal Matthew Maggiore, Jacquelyn Maggiore and Paul Maggiore, of Maggiore Construction, its counsel Paul Feldman, Esq., of Davis Malm, its civil engineer Michael J. Novak, P.E., of Patriot Engineering, LLC, its architect Chris Mulhern, AIA, of Harrison Mulhern Architects, its environmental consultant Richard A. Kirby, of LEC Environmental Consultants, Inc., and its traffic engineer Shaun P. Kelly, of Vanasse & Associates, Inc.
9. The Board utilized the services of Sean Reardon, P.E., of BETA Group, Inc., and Cliff Boehmer of Davis Square Architects for design review. The Board also utilized the services of Town Counsel Douglas Heim, Esq., Planning Director Claire Ricker, and other town staff. The Board was also represented during the course of the hearing by Paul Haverty, Esq., of Blatman, Bobrowski, Haverty & Silverstein, LLC as its Chapter 40B technical consultant through a grant from the Massachusetts Housing Partnership.
10. During the public hearing, there was significant public input. The Board heard input from abutters and other interested persons throughout the hearing process. The Board also heard significant input from town departments, including the Conservation Commission, the Department of Planning and Community Development, and the Transportation Advisory Committee.

II. JURISDICTIONAL FINDINGS

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11. The Applicant has demonstrated its eligibility to submit an application for a Comprehensive Permit to the Board, and the development fulfills the minimum project eligibility requirements set forth in 760 CMR 56.04(1) as follows:
 - a. The Applicant is a limited liability company, and has indicated in its application that it will conform to the limited dividend requirements of G. L. 40B, §§ 20-23, thus establishing it is a limited dividend entity. The Applicant has a principal address of 13 Wheeling, Avenue, Woburn, MA 01801.
 - b. The Applicant has received a written determination of Project Eligibility from MassHousing dated August 19, 2022 under the New England Fund Program, a copy of which was provided to the Board with the original application.
 - c. The Applicant provided a copy of a Purchase and Sale Agreement between 1021 Massachusetts Avenue, LLC and MAJ Investment, LLC (that has been assigned to the Applicant) and a copy of a Purchase and Sale Agreement between Jonathan Nyberg and Sara Q. Dolan and MAJ Investment, LLC (that has been assigned to the Applicant). The Subsidizing Agency determined that the Applicant has site control to pursue a comprehensive permit a part of its Project Eligibility Letter. Pursuant to 760 CMR 56.04(6), this determination is conclusive as to the issue of site control.
 - d. The Applicant has agreed to execute a Regulatory Agreement that limits its return in accordance with G. L. c. 40B and the regulations (760 CMR 56.00 et seq.) and guidelines adopted thereunder by DHCD.
12. The Town of Arlington ("Town") did not meet the statutory minima set forth in G. L. c. 40B, § 20 or 760 CMR 56.03(3) to 56.03(7) at the time the original application was filed.
 - a. At the time of the filing of the Application, the number of low or moderate income housing units in the Town constituted 5.7% of the total year-round housing units in the Town, based on the most recent publicly available copy of the DHCD Subsidized Housing Inventory, dated December 21, 2020. Thus, the Town does not meet the ten percent (10%) statutory minimum.
 - b. In another pending comprehensive permit application, the Board has asserted a claim that there are existing affordable housing units that are on sites that comprise more than one and one half percent (1.5%) of the total

land area of the Town that is zoned for residential, commercial or industrial use (excluding land owned by the United States, the Commonwealth of Massachusetts, or any political subdivision thereof). The Board timely asserted this claim pursuant to 760 CMR 56.03(8). The Applicant appealed this claim to the Department of Housing and Community Development, which issued a decision dated November 17, 2016, reversing the Board's Safe Harbor determination. The Board appealed this decision to the Housing Appeals Committee. On October 15, 2019, the Housing Appeals Committee upheld the decision of the Department of Housing and Community Development. The Board ultimately issued a decision approving a comprehensive permit for this development, which is currently under appeal. Without waiving its rights on the other pending application, the Board did not provide the Applicant with written notice of this safe harbor pursuant to 760 CMR 56.03(8) on this application.

- c. The granting of this Comprehensive Permit will not result in the commencement of construction of low or moderate income housing units on a site comprising more than three tenths of one percent of land area in the Town or ten acres, whichever is larger, zoned for residential, commercial or industrial uses (excluding land owned by the United States, the Commonwealth of Massachusetts or any political subdivision thereof) in any one calendar year.
- d. The Town has an approved Housing Production Plan pursuant to 760 CMR 56.03(4), but is not currently within (or eligible for) certification.
- e. The Town has not achieved recent progress toward its housing unit minimum pursuant to 760 CMR 56.03(5).
- f. The Project as originally submitted does not constitute a Large Project pursuant to 760 CMR 56.03(6).
- g. The Applicant's Comprehensive Permit Application does not constitute a Related Application pursuant to 760 CMR 56.03(7).

III. FACTUAL FINDINGS

Location of Project

13. The Project is located on a previously developed 1.08 acre parcel of land located at 1021-1027 Massachusetts Avenue. A portion of the Property is located within

the 200-foot riverfront area for Mill Brook. The Property is located within the Business 1 (B1) Zoning District.

14. In addition to being located next to various commercial uses, the Project also directly abuts an apartment building with 12 units, a two family building, and condominium building with 98 units.

Wetlands

15. The Applicant proposes work within the outer two hundred foot (200') buffer to the riverfront area associated with Mill Brook. This riverfront area already consists of a degraded area of 2,517+/- square feet that is an existing paved parking area. The proposed work includes 4,619+/- square feet of disturbance to the riverfront area construction of portions of the proposed structure resulting in new degraded riverfront area of 2, 102+/- square feet. The installation of a subsurface stormwater management infiltration system is also proposed in the riverfront area. Two areas of on-site mitigation are proposed to address the new disturbance to the riverfront area: (1) creation of a restored woodland area of 7,362+/- square feet and (2) creation of a meadow area of 4,119+/- square feet. The work will also include removal of trees, the installation of erosion controls, grading, and installation of a retaining wall, paths, a bench and fencing.
16. The Project also proposes off-site enhancement within one hundred foot (100') of Mill Brook, consisting of the removal of invasive plants and installation of new native plantings.
17. The Project will be required to obtain an Order of Conditions from the Arlington Conservation Commission pursuant to the Wetlands Protection Act.
18. All work within the Adjacent Upland Resource Area (AURA) is limited to for the woodland restoration and replacement of an existing fence.
19. The Project is in compliance with Section 25D of the Arlington Regulations for Wetlands Protection because 0'-25' AURA is off-site and no additional pervious area will occur.
20. The Applicant submitted an Impact Analysis on the Natural and Built Environment prepared by LEC Environmental Consultants, Inc.
21. The Applicant utilized NOAA 14+ data for the stormwater management calculations, consistent with current best practices.

The Transportation Network

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22. Primary access to the Project will be from Massachusetts Avenue.
23. The Project will provide fifty (50) on-site parking spaces for the residential units and commercial space.
24. The Project will provide 49 bicycle parking spots in the basement and 26 hanging bicycle racks in the garage.

Civil Engineering, Site Design, and Stormwater Impact

25. The Board engaged in review of potential civil engineering, site design, traffic, stormwater and floodplain impacts of the Project.
26. The Project will connect to the Arlington municipal water and sewer systems.
27. Approximately 25% of the site is currently covered by impervious surface. The Project will increase the amount of the site covered by impervious surface to ____% of the Property. The Applicant proposes installation of a full stormwater mitigation system designed in full compliance with the Massachusetts Stormwater Regulations and based on with stormwater calculations using National Oceanic and Atmospheric Administration NOAA++ precipitation data. This system adequately and appropriately addresses the increase in the amount of impervious surface that is proposed.
28. Stormwater management has been designed to be in compliance with the Mass Stormwater management standards in accordance with 310 CMR 10.05(6)(k) through (q) and defined in detail in the MassDEP Stormwater Management Handbook. The system incorporates best management practices (BMP's) to facilitate total suspended solids (TSS) removal, infiltration and detention of stormwater flows.
29. The Project, as conditioned herein, will address the lack of affordable home ownership units in the Town.
30. The Board finds that the conditions imposed in Section IV of this Decision are necessary in order to address Local Concerns. The Board finds that such conditions will not render the project uneconomic. To the extent that such conditions may render the project uneconomic (as defined in 760 CMR 56.02), the Board finds that the Local Concerns outweigh the potential benefits of the proposed affordable units.

31. The Board finds that granting certain waivers from local by-laws and regulations is acceptable even though granting waivers may have an adverse impact on Local Concerns.
32. The Board acknowledges concerns raised by abutters and other interested parties about the Project's potential incompatibility with nearby uses. The Board has addressed these concerns by the imposition of appropriate conditions. The Board further finds that conditions detailed below appropriately address these matters of local concern in a manner that outweighs the regional need for affordable housing. The Board finds that the conditions imposed below address local and regional housing needs while properly protecting valid issues of local concern.
33. The Board finds that the construction of the Project, as conditioned, will be consistent with local needs.

IV. CONDITIONS

A. **General**

- A.1 The holder of this Comprehensive Permit is 1025 Mass Ave, LLC. The Property is defined as the property located at 1021 and 1025 Massachusetts Avenue, Arlington, Massachusetts, shown on a plan entitled "1021 and 1025 Massachusetts Avenue, Comprehensive Permit Plan Set, Located in Arlington, MA" dated September 19, 2022, with revisions through _____, prepared by Patriot Engineering. The Project is defined as all features shown on the plans listed below in Condition A.2 or as otherwise required by this Comprehensive Permit. The Project is intended to be declared as a condominium and therefore use of the term Applicant herein shall also include the Condominium Association for any conditions that are continuing obligations after the Project is constructed and the condominium created.
- A.2 Except as may be provided for in the following Conditions or in the Final Plans referenced below, the Project shall be constructed substantially in conformance with the plans and drawings listed below in this Condition A.2, which for purposes of this Comprehensive Permit shall be considered the Approved Plans for the Project ("Approved Plans"). Minor changes to the Approved Plans (e.g., changes that do not materially affect the location of, or increase the height or massing of the structures, or increase the number of units contained in the residential buildings) shall be submitted to the Director of Planning and Community Development who shall have the authority to approve such changes as immaterial changes. If the Director of Planning and Community Development determines that the proposed changes do not conform to the requirements of this Comprehensive Permit, they shall so notify the Applicant and the Applicant shall

either bring the plans into conformance with this Decision or seek modification in accordance with 760 CMR 56.05(11). The Approved Plans consist of the following plan set from Patriot Engineering, Inc., and Harrison Mulhern Architects:

“1021 and 1025 Massachusetts Avenue, Comprehensive Permit Plan Set, (1021 Assessors Map 55, Lot 19) (1025 Assessors Map 55, Lot 20) Comprehensive Permit Plan Set, (To Accompany a Zoning Board of Appeals Application) Located in Arlington, MA dated September 19, 2022”, with revisions through _____, prepared by Patriot Engineering, and consisting of the following sheets:

Sheet 1	Cover Sheet
Sheet 2	Existing Conditions Plan
Sheet 3	Site Demolition Plan
Sheet 4	Site Grading and Utility Plan
Sheet 5	Site Utility Plan
Sheet 6	Site Details – I
Sheet 7	Site Details - II

“1021-1025 Massachusetts Avenue, Arlington, MA” dated September 19, 2022 prepared by Harrison Mulhern Architects, with revisions through April 14, 2023, and consisting of the following sheets:

A 1.0	Basement Floor Plan
A 1.1	Ground Floor Plan
A 1.2	Second Floor Plan
A.1.3	Third Floor Plan
A 1.4	Fourth Floor Plan
A 1.5	Fifth Floor Plan
A.1.6	Roof Plan
A 2.1	Front Elevation/Rear Elevation
A 2.2	Right Elevation/Left Elevation
A 2.3	Section Elevation
A 2.4	Section Elevation
A 2.5	Street Context Elevation
A 3.1	View From Mass. Ave
A 3.2	Aerial View

Lighting details are contained in the plan entitled “1021 Massachusetts Avenue Photometric Plan prepared by Robert J. Lindstrom and dated September 13, 2022.

Utility Plan entitled "Site Utility Plan details are contained in the plan entitled "Proposed Site Plan Located in Arlington, MA (Middlesex County) prepared for MAJ Investment, LLC" dated September 16, 2022, prepared by Patriot Engineering.

- A.3 The Applicant shall be a Limited Dividend Entity as required by Chapter 40B and its successors and assigns shall comply with the limited dividend and other applicable requirements of Chapter 40B and the regulations adopted thereunder.
- A.4 The Project shall consist of not more than fifty (50) home ownership condominium units located in a single structure, and other related residential amenities, all as shown on the Approved Plans. The Project shall consist of no more than ninety five (95) bedrooms. The Project shall also consist of approximately 965 square feet of commercial space on the ground floor.
- A.5 There shall be fifty (50) vehicle parking spaces (inclusive of required handicap spaces).
- A.6 Pursuant to the revised Waiver List submitted to the Board and attached hereto as Exhibit A, the Applicant has requested, and the Board has granted, those waivers from the Arlington Zoning Bylaw and other local by-laws and regulations as specified therein. No waivers are granted from requirements that are beyond the purview of G.L. c. 40B, §§ 20-23. No waiver of permit or inspection fees has been granted. Any subsequent revision to the Approved Plans, including but not limited to revisions in the Final Plans, referenced below, that requires additional or more expansive waivers of any local by-laws or regulations, must be approved by the Board in accordance with 760 CMR 56.05(11).
- A.7 Except as otherwise specifically provided herein, where this Decision provides for the submission of plans or other documents for approval by the Director of Planning and Community Development or other Town Departments, the Director of Planning and Community Development or applicable Department Head will use reasonable efforts to review and provide a written response within fifteen (15) days following submission. Should fifteen (15) days elapse without a response as aforesaid, said plans or documents shall be deemed approved.
- A.8 This Comprehensive Permit may be subsequently assigned or transferred pursuant to 760 CMR 56.05(12)(b). The pledging of the Property as security under any conventional loan financing terms as set forth in the financing entity's Loan Documents or any foreclosure sale pursuant to the same shall not constitute an assignment or transfer under this paragraph.

- A.9 The provisions of this Comprehensive Permit Decision and Conditions shall be binding upon the successors and assigns of the Applicant, and the obligations shall run with the land. In the event that the Applicant sells, transfers, or assigns its interest in the development, this Comprehensive Permit shall be binding upon the purchaser, transferee, or assignee and any successor purchasers, transferees or assignees. The applicable limited dividend restrictions shall apply to the owner of the project regardless of sale, transfer, or assignment of the project.
- A.10 The sidewalks, driveways, roads, utilities, drainage systems, and all other on-site infrastructure shown on the Approved Plans as serving the Project shall remain private in perpetuity, and the Town shall not have, now or in the future, any legal responsibility for the operation or maintenance of the infrastructure, including but not limited to snow removal, landscape maintenance, and hydrant maintenance. In this regard, the proposed site access ways within the Project shall not be dedicated to or accepted by the Town.
- A.11 Unless otherwise indicated herein, the Board may designate an agent to review and approve matters on the Board's behalf subsequent to this Decision.

B. Affordability

- B.1 Except as may otherwise be allowed by the Subsidizing Agency (MassHousing or other Subsidizing Agency), pursuant to the applicable subsidy program, a minimum of twenty-five percent (25%) or thirteen (13) of the home ownership shall be reserved for income-eligible households, meaning that they shall be sold to and occupied by households, as proposed by the Applicant, whose income (adjusted for household size) is not more than eighty percent (80%) of the Area Median Income ("AMI"), as determined by the United States Department of Housing and Urban Development ("HUD") and the Subsidizing Agency (the "Affordable Units"). Affordable Units shall be dispersed throughout the Project in accordance with the guidelines of the Subsidizing Agency. The Board acknowledges that affordable unit location is an issue within the exclusive jurisdiction of the Subsidizing Agency.
- B.2 All of the Project's Affordable Units shall be restricted for sale to households earning no more than the maximum allowable household income, adjusted for household size, as determined by MassHousing or any substitute Subsidizing Agency. The Affordable Units shall be maintained as affordable in perpetuity, which for the purposes of this Decision shall mean for so long as the Property does not comply with applicable zoning requirements without the benefit of this Comprehensive Permit.

B.3 The Applicant shall obtain approval by the Subsidizing Agency of an Affirmative Fair Housing Marketing Plan (“AFHMP”) prior to the sale of any Affordable Units, and shall ensure that the Project complies with the Subsidizing Agency’s Fair Housing requirements.

B.4 For the initial sale of the units in the Project, the maximum number of Affordable Units allowed by law that may be subject to a local preference is seventy percent (70%), if approved by the Subsidizing Agency. The Board chooses not to implement any local preference, recognizing the regional need for affordable housing is paramount.

C. Submission Requirements

C.1 Prior to any construction or site development activities (including site clearing, tree removal, grading, etc.) on the Property, whether or not pursuant to a building permit (except as allowed by the Director of Planning and Community Development, as noted below), the Applicant shall:

- a. Deliver to the Board a check in a reasonable amount determined by the Director of Planning and Community Development to be used for staff to retain outside experts, only if necessary because town staff lacks the necessary expertise and state law does not require the building contractor to provide the inspection information, and technical review and inspection are required under these conditions but at inception shall not exceed \$6,500 unless an alternate amount has been agreed upon by the Board and the Applicant. Said funds shall be deposited by the Board in an account pursuant to G. L. c. 44, § 53G and shall only be used for technical reviews and inspections associated with this Project. Any unspent funds shall be returned to the Applicant with accrued interest at the completion of the project. If at any time the Board reasonably determines that there are insufficient funds to cover the costs of technical reviews, it shall inform the Applicant and the Applicant shall forthwith deliver additional funds as specified by the Board in a reasonable amount as may be determined by the Board. Said funds may be used by the Board to hire civil engineering, traffic engineering, and/or other professionals that the Board deems reasonably necessary to ensure compliance with the conditions hereof.
- b. Obtain and file a copy of a National Pollution Discharge Elimination System (NPDES) Permit from the U.S. Environmental Protection Agency (EPA), if necessary. The Board shall also be provided a copy of the Stormwater Pollution Prevention Plan (SWPPP) submitted along with any NPDES filing.

- c. Submit to the Board for review and administrative approval Final Engineering Drawings and Plans (“Final Plans”), such approval to be that the plans conform to the requirements of this Comprehensive Permit and incorporate the relevant conditions herein. The Final Plans shall also incorporate all relevant conditions and requirements of permitting agencies having jurisdiction. Applicable sheets of the Final Plans shall be signed and sealed by the Professional Land Surveyor of record, the Professional (Civil) Engineer of record, and a Registered Landscape Architect. Final Architectural Plans shall be stamped by a Registered Architect. The Final Plans shall be submitted to the Board at least thirty (30) days prior to the anticipated date of commencement of building construction or submission of an application for building permits, whichever is earlier (the “Final Site Plan Submission Date”).
- d. Submit to the Board for its administrative approval, a landscaping plan with the Final Plans, signed and sealed by a Registered Landscape Architect, depicting the following:
 - i. Overall planting plan that includes a demarcation of clearing and the limits of work;
 - ii. Planting plans for drives showing shade trees and lighting fixture locations;
 - iii. Plans of walkways in open space and recreation areas, if any;
 - iv. Prototype planting plans for each building;
 - v. Prototype screening plans for dumpsters, depicting plantings and fencing;
 - vi. Planting schedules listing the quantity, size, height, caliper, species, variety, and form of trees, shrubs, and groundcovers;
 - vii. Tree protection and preservation plans
 - vii. Construction fencing along abutting property lines; and
 - ix. Construction details.

All plantings shall consist of native, non-invasive, drought-tolerant species. Plantings installed along drives and walkways shall also be salt-tolerant. Twelve (12) months after completion of plantings, the Applicant shall remove and replace any dead or diseased plantings and trees serving as screening. The Condominium documents shall address ongoing maintenance of landscaping features.

- e. Other than site work and such other work as may be authorized in writing by the Director of Planning and Community Development, no other construction of units shall commence and no building permits shall be issued under this Comprehensive Permit until the Director of Planning and Community Development and other applicable staff has approved the Final Plans as being in conformance with this Decision. If no written response or comments have been given to the Applicant by the Building Commissioner and/or Director of Planning and Community Development concerning the Final Site Plans within forty-five (45) days after the Final Site Plan Submission Date, the Final Plans, as delivered, will be deemed to have been approved.
 - f. The Applicant shall include on the Final Plans all of the various changes that have occurred during the hearing process. These plans should reflect site plan changes including but not limited to surface parking, proposed grading, stormwater systems, garage elevation, and other relevant site features.
 - g. The Applicant must provide notification to the Arlington Assessor's Office for address and unit numbering.
- C.2 Prior to the issuance of any building permits, the Applicant shall:
- a. Record this Comprehensive Permit endorsed by the Board with the Middlesex South Registry of Deeds, at the Applicant's expense, and provide proof of such recording with the Board.
 - b. Submit to the Board and the Director of Planning and Community Development evidence of Final Approval from the Subsidizing Agency (MassHousing), as required by the Project Eligibility letter and the Chapter 40B regulations.
 - c. Submit to the Board a copy of the Regulatory Agreement and Monitoring Services Agreement for the Project. Execution and recording of such Regulatory Agreement with DHCD shall be complete prior to the issuance of any building permit. It is understood and agreed that Monitoring

provisions may be included with the Regulatory Agreement, in lieu of a separate Monitoring Services Agreement.

- d. Submit to the Building Commissioner final Architectural Plans prepared, signed and sealed by an architect with a valid registration in the Commonwealth of Massachusetts (“Architectural Plans”). The Architectural Plans shall be submitted in such form as the Building Commissioner may request pursuant to the State Building Code.
- e. An automatic sprinkler system conforming with NFPA 13 and a fire alarm system conforming to NFPA 72 shall be required in all residential buildings. Both systems shall be monitored by a UL approved central station monitoring service.
- f. Obtain and file with the Building Commissioner a copy of all required Federal, State, and local permits and approvals required to begin construction of the Project.
- g. Obtain all necessary building, electrical, plumbing, and associated permits required to begin construction of the Project required by state law (it is understood that compliance with this requirement is part of the building permit process, rather than required prior to the issuance of building permits).
- h. The Applicant will be responsible for all applicable water and sewer connection and system fees as per officially promulgated fee schedules uniformly applicable to all other Town of Arlington projects. There are currently no capacity impacts and privilege fees (sometimes referred to as I & I fees) required, and if later adopted, such fees shall not be applicable to this Project.
- i. The Applicant shall perform additional test pits at the proposed stormwater basins to confirm groundwater elevations. These test pits shall be done during seasonal high groundwater conditions and shall be witnessed by the Town and/or its agent.

D. Construction Completion/Certificate of Occupancy

D.1 Prior to issuance of a certificate of occupancy for any structure in the Project, the Applicant shall:

- a. Submit engineer’s interim certification of compliance with utilities plan and profiles for such Phase (as applicable) to the Building Commissioner.

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- b. Provide a letter to the Board, signed by the Applicant's civil engineer, certifying that the structure and supporting infrastructure has been constructed in compliance with the Final Plans in all material respects.
 - c. Obtain acceptance from the Arlington Fire Department of testing of all fire protection systems, fire alarm systems, fire sprinkler systems, and local smoke alarms within the dwelling units of the structure.
 - d. Obtain a sewer connection sign-off from the Arlington Department of Public Works for the structure.
- D.2 Prior to issuance of the certificate of occupancy for the Project, the Applicant shall:
- a. Submit to the Board, in digital file format and full-size paper copies, a final as-built plan including profiles, showing actual-in ground installation of all applicable utilities, rim and invert elevations, roadway, sidewalk and associated construction. The file format shall be in AutoCAD file delivery shall be in full model view and individual sheet views. The digital file shall include property boundaries, dimensions, easements, rights-of-way, edge of pavement, edge of sidewalk, edge of water bodies, wetland boundaries, topographic contours, spot elevations, parking areas, road centerline and associated text. Said digital data shall be delivered in the Massachusetts State Plane Coordinate System, North American Datum 1983 and North American Vertical Datum 1988, in U.S. Survey Feet.
 - b. Submit to the Board, for review by its Counsel, a copy of the Condominium Association Master Deed and Rules and Regulations to insure such documents contain a reference that the Condominium is subject to this Decision and, identify the following continuing conditions after the receipt of an occupancy permit:
 - (i) .
 - (ii) Section I: 7,8,9,13,14 and 16

E. Project Design and Construction

- E.1 Prior to the commencement of any work on the Property, the Applicant and the site general contractor shall attend a preconstruction conference with representatives from the Arlington Fire Department, the Department of Public Works (Arlington Water and Sewer Division and Engineering Division), Planning and Community Development and other Town staff and consultants as may be determined.
- E.2 The construction management plan ("CMP") attached hereto as Exhibit B has been reviewed and approved and construction of the Project shall be performed in compliance with the CMP.
- E.2 Upon reasonable notice and subject to construction activity, the Applicant shall permit representatives of the Board to observe and inspect the Property and construction progress until such time as the Project has been completed and the final occupancy permit issued.
- E.3 The proposed construction shall be in accordance with applicable Federal and State laws, rules and regulations.
- E.4 All site retaining walls four (4) feet or greater in height shall be designed by a Massachusetts Professional Structural Engineer.
- E.5 During construction, the Applicant shall conform to all local (except as waived herein), State, and Federal laws and provide advance notice to abutters per the Town's Residential Construction Control Agreement regarding noise, vibration, dust, and blocking of Town roads in order to accommodate delivery of materials to the site or for other construction staging purposes. The Applicant shall at all times use all reasonable means to minimize inconvenience to residents in the general area. Adequate provisions shall be made by the Applicant to control and minimize dust on the site during construction in accordance with the construction mitigation plan. The Applicant shall keep all portions of any public way used as access/egress to the Project free of soil, mud or debris deposited due to use by construction vehicles associated with the Project.
- E.6 Appropriate signage shall be shown on the Final Plans, consistent with the sign information shown on the Approved Plans. A temporary sign including the name and address of the project and contact information for the Applicant, general contractor, engineers, architect, and other relevant parties shall be posted on site for the duration of construction operations.
- E.7 The location of all utilities, including but not limited to electric, telephone, and cable, shall be shown on the Final Plans. All transformers and other electric and telecommunication system components shall be included on the Final Plans.

- E.8 The Applicant shall use electric heat and hot water for the Project, if reasonably available at the time of the submission of Final Plans.
- E.9 The Applicant shall install lighting on the site that conforms to the Town of Arlington's Zoning Bylaw and Town Bylaw. Lighting shall be down-lit/shielded to prevent light spillover onto surrounding properties and comply with dark sky requirements. Management of outdoor lighting shall be the responsibility of the Applicant.
- E.10 Utilities, including but not limited to telephone, electric, and cable, shall be located underground. The general contractor shall be responsible for coordinating all subsurface work with Dig Safe prior to the commencement of any excavation.
- E.11 Soil material used as backfill for pipes, access drives, or structures shall be certified by the Geotechnical Engineer to the Building Commissioner as meeting design specifications, as applicable.
- E.12 The Applicant shall test the soil during construction to confirm soil types in the areas of the infiltration system. Such testing shall be witnessed by the Board's designee. All unsuitable material, if any, discovered in excavation for the infiltration system shall be removed and disposed of in accordance with State and local regulations.
- E.13 Construction activities shall be conducted between the hours of 7:00 a.m. and 6:00 p.m., Monday through Friday and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays, Sundays, or legal holidays. For purposes of this condition, construction activities shall be defined as: start-up of equipment or machinery, delivery of building materials and supplies; delivery or removal of equipment or machinery; removal of trees; grubbing; clearing; grading; filling; excavating; import or export of earth materials; installation of utilities both on and off the site; removal of stumps and debris; loading of construction dumpsters and erection of new structures. All off-site utility work shall be coordinated and approved by the Building Department and shall not be subject to the timing restrictions set forth above. Parking of all vehicles and equipment must be on the Property during construction.

- E.14 Burning or burial of construction or demolition debris on the site is strictly prohibited. All such materials are to be removed from the site in accordance with applicable law. During construction, the site shall be secured against unauthorized entry or vandalism by fencing, or other appropriate means, and all construction materials shall be stored or stockpiled in a safe manner. Any floodlights used during the construction period shall be located and directed so as to prevent spillover or illumination onto adjacent properties. All construction activities are to be conducted in a workmanlike manner.
- E.15 No building areas shall be left in an open, unstabilized condition longer than sixty (60) days. Temporary stabilization shall be accomplished by hay bales, hay coverings or matting. Final stabilization shall be accomplished by loaming and seeding exposed areas.
- E.16 All dumpsters serving the Project shall be enclosed and covered (with the exception of construction dumpsters used during construction). The Board shall review the dumpster location as part of the approval of the Final Plans if different from what has been shown on the Approved Plans.
- E.17 All retaining walls visible from a public way or direct abutters, as determined by the Building Commissioner based upon the time of year when such walls would be most visible, shall be constructed in an aesthetic manner. Specifically, retaining walls shall avoid the use of exposed concrete similar to a foundation wall to the greatest extent practicable.
- E.18 Snow shall be stored within the areas of the Property designated on the Approved Plans. To the extent snowfall exceeds the capacity of the designated snow storage areas, the Applicant shall truck the excess snow off-site. Snow may not be placed in or adjacent to resource areas.
- E.19 The Applicant shall comply with all applicable local, state and federal requirements relating to noise from construction activities, including the regulations contained at 310 CMR 7.10 and the DEP's Noise Policy contained in DAQC Policy 90-001 as well as the Arlington Noise Abatement Bylaw contained at Title V, Section 12. The Applicant shall also implement all necessary controls to ensure that vibration from construction activities does not constitute a nuisance or hazard beyond the Property. Upon notification from appropriate municipal officials, the Applicant shall cease all construction activities creating noise in excess of state and federal standards, and shall implement such mitigation measures as is necessary to ensure the construction activity will comply with applicable State and Federal requirements.

- E.20 The Applicant is responsible for the sweeping, removal of snow and sanding of the internal roadways and driveways providing access to both the residents of the Project and emergency vehicles. Neither snow nor sand may be placed in or adjacent to resource areas.
- E.21 The Applicant shall maintain all portions of any public road, whether state or local roads, used for access to the Property by construction vehicles, free from soil, mud or debris deposited due to such use during the duration of construction.
- E.22 The Applicant shall comply with DPW requirements regarding curb-cut permits.
- E.23 If other than routine earth removal associated with construction of footings and foundation walls and excavation for the basement area, is necessary, the Applicant shall prepare an earth removal plan, showing all necessary cuts and fills, and describing the number of truck trips necessary for the earth removal.
- E. 24 All catch-basins that will receive runoff from vehicles shall have oil/water separators as shown on the Approved Plans.
- E. 25 Project sidewalks and pathways/walkways shall be compliant with the requirements of the Americans with Disabilities Act (“ADA”) and the requirements of the Massachusetts Architectural Access Board (“AAB”).
- E. 27 This Comprehensive Permit shall be a master permit which is issued in lieu of all other local permits or approvals that would otherwise be required, except for the issuance of Building Permits and Certificates of Occupancy by the Building Department under the State Building Code; provided, however, the Applicant shall pay all local fees for such permits or approvals as published in the Town regulations or bylaws, including but not limited to building permits, inspections, water and sewer connections, and curb cuts.
- E.28

F. Traffic/Traffic Safety Conditions / Sidewalks

- F.1 Site access will be provided via Massachusetts Avenue.
- F.2 The Applicant shall install all proposed traffic signs and pavement markings shown on the approved final plans. Signs and markings shall conform to the Manual on Uniform Traffic Control Devices (MUTCD), latest edition and other applicable state or local requirements.

- F.3 The proposed site provides fifty one (51) parking spaces in a garage. No changes to the number, configuration or designation of parking spaces shown on the final approved plans shall be made unless approved by the Board through a modification process.
- F.4 The Applicant shall ensure that emergency personnel can adequately maneuver through the site. The Arlington Fire Department shall review the Final Plans to ensure compliance with this condition.
- F.5 The Applicant shall provide 75 long-term bicycle parking spaces that are covered and secure.
- F.6 The Applicant shall provide 5 outdoor short-term bicycle parking spaces. These spaces shall be near a location of public building access, such as the courtyard area.
- F.7 The Applicant shall provide new residents with transportation information packets with information on getting around Arlington sustainably.
- F.8 The Applicant shall provide electric vehicle charging stations at 5% of the parking spaces in the garage. The Applicant shall provide for the expansion of the number of charging stations in accordance with tenant demand.

G. Police, Fire, and Emergency Medical Conditions

- G.1 The Condominium Association shall provide emergency contact name and number for representative of the unit owners to the Arlington Police Department and Fire Department.
- G.2 Stairwells and garages must be two-hour fire rated. Residential units must be one-hour fire rated.
- G.3 The residential structure shall be fully sprinklered to NFPA regulations.
- G.4 Compliance with all State Building Code and NFPA requirements relating to fire access and safety shall be met.
- G.5 All elevators must have emergency generator backup.
- G.6 The Project shall maintain fire personnel access to all four sides of the residential structure at all times.

- G.7 The Project shall provide adequate external lighting to ensure safety of the residents of the Project. External lighting shall conform to the requirements of the local Regulation of Outdoor Lighting [Title V, Section 14].
- G.8 During times of construction, the Project, including all structures shall be accessible to Fire Department and other emergency vehicles. Additionally, all hydrants shall be operational during construction in accordance with NFPA requirements.
- G.9 The Applicant shall consult with the Fire Department prior to the commencement of construction to provide an on-site emergency plan, which shall be updated as necessary throughout the construction process.

H. Water, Sewer and Utilities

- H.1 The Applicant shall be responsible for the design and installation of the utilities servicing the Project.
- H.2 All water and sewer infrastructure shall be installed in conformance with the Arlington Water and Sewer Division's technical requirements. The Applicant shall provide the Arlington Water and Sewer Division with calculations to ensure the distribution system for the area has the necessary capacity to meet system demand required prior to the commencement of construction.
- H.3 Fire hydrants shall be placed as shown on the Approved Plans in locations approved by the Arlington Fire Department. If the Arlington Fire Department approves different hydrant locations, such modification shall be accepted administratively as an insubstantial change pursuant to 760 CMR 56.05(11).
- H.4 The service size for the domestic water service should be verified by the Arlington Water and Sewer Division and information on the fire service size and requirements should be verified by the Arlington Fire Department. The Applicant shall submit information regarding the size of both the domestic and fire services as part of Final Plans, after consultation with the Arlington Water and Sewer Division. Any connections to the Town water main shall be triple-gated and a tee connection.
- H.5 The water and sewer utilities servicing the buildings in the Project shall be installed and tested in accordance with applicable Town requirements and protocols, except as may be waived herein.

H.6 Utilities shall be installed underground by the Applicant using methods standard to those installations. Utilities shall be defined as electric service lines, telephone lines, water service lines, CATV lines, municipal conduit and the like. The Applicant shall request a Grant of Location from the Select Board for any installation of new utility poles or underground conduit in the public right of way as needed.

H.7 The Applicant shall be responsible for all trash and recycling removal from the Property. The Town of Arlington shall not have any responsibility for trash, recycling, compost, and/or yard waste pickup at the Property.

I. Wetlands/Floodplain/Environmental Conditions

I.1 Prior to the commencement of construction, erosion control measures shall be installed consistent with the Approved Plans.

I.2 No uncovered stockpiling of materials shall be permitted within the 100 foot Wetland Buffer Zone or Adjacent Upland Resource Areas ("AURA") or other resource areas.

I.3 No dumpsters shall be allowed within the AURA or other Resource Areas.

I.4 No heavy equipment may be stored within the AURA of other Resource Area.

I.5 Any dirt or debris spilled or tracked onto any paved streets shall be swept up and removed daily.

I.6 The Applicant must retain a professional engineer to oversee the installation of the stormwater management system. A stormwater mitigation report must be submitted to the ZBA within 10 days of the completion of the stormwater management system. The stormwater report shall include as-built plans, photographs from installation, and a written summary of the installation of the stormwater management system and stormwater best management practices.

I.7 To avoid adding excess nitrogen runoff, the Applicant shall only treat the planted areas within resource areas with slow release nitrogen fertilizer. Application of this fertilizer cannot occur in the summer, or after storm events. Lawn fertilizer shall only be applied twice a year, in spring and fall. The application of plant nutrients shall otherwise comply with 330 CMR 31.00. No other herbicides or treatment methods are approved. No pesticides or rodenticides shall be used to treat pest management issues within Resource Areas. These shall be continuing conditions in perpetuity that survives the expiration of this permit.

- I.8 Pervious surfaces shown on the project plans shall be maintained as specified in the stormwater report and logs/reports shall be maintained by the Applicant. Pervious surfaces shown on the project plans shall not be replaced by impervious surfaces. This shall be a continuing condition in perpetuity that survives the expiration of this permit.
- I.9 No snow storage is permitted within the AURA or other Resource Areas. A snow storage plan shall be submitted to the ZBA prior to construction completion. If these areas are insufficient for storage during the snow season, snow shall be removed from the site. Sediments and debris shall be removed from snow storage areas in the early spring. This shall be a continuing condition in perpetuity that survives the expiration of this permit.
- I.10 The Applicant shall protect all adjacent catch basins using silt socks during construction.
- I.11 The Applicant shall conduct catch basin sump cleanings at the end of the project work period.
- I.12 The Applicant shall submit copies of the SWPPP inspection reports to the ZBA within 10 days of the date of each report.
- I.13 All mitigation plantings and all plantings within resource areas shall be native and be installed and maintained according to the standards of the American Association of Nurserymen (AAN). No cultivars of native plantings shall be allowed. This shall be a continuing condition in perpetuity that survives the expiration of this permit. An irrigation system shall be installed to provide adequate and appropriate water for the plantings.

- I.14 All plantings planted and invasive species removed through this project in Resource Areas or as mitigation on site shall be initially monitored for three years. The off-site enhancement on the Mill Brook condominium property shall be monitored for two years. After installation is complete a monitoring report shall be submitted annually by November 15th for the three year and two year monitoring periods, reporting on the health of the new plantings and the success of the invasive plant management. The annual report shall identify any plantings that did not survive and summarize the replacement of the plantings. A survival rate of 80% must be achieved at the end of the third monitoring year. If there is less than a 80% survival rate of the plantings after the third year, the Applicant must submit recommendations for replacements to the ZBA for approval. After the initial three year monitoring period for the on-site restored woodland, annual monitoring reports will be provided to the Arlington Zoning Board of Appeals and Conservation Commission by November 15th of every year for an additional 7-year monitoring period so that the monitoring period is 10 years after installation of the restored woodland. These additional monitoring reports will describe the condition of the restored woodland, overview the management efforts undertaken over the past growing season (such as plant replacement, invasive species management, etc.), and describe the anticipated management efforts required for the subsequent growing season so that the restored woodland successfully matures as designed. These additional monitoring reports shall include representative photographs of the restored woodland from photographic stations established within the woodland, such that year to year images can be compared.

Regarding invasive species management, the restored woodland and off-site Riverfront Area restoration shall be managed for invasive species during their respective monitoring periods to determine if any invasive/exotic plants included on the Invasive Plant list provided by the Massachusetts Invasive Plants Advisory Group have colonized the restored woodland and/or off-site Riverfront Area restoration on the Mill Brook Condo property. Specifically, these areas shall be evaluated once annually during the late spring/early summer to detect invasive exotic plants prior to seed production.

Observed invasive plants shall be removed from the site either by hand or with hand tools (shovels, weed wrenches, etc.) to the extent practicable and appropriately disposed of off-site. If non-mechanical removal is not practical, then the stem shall be cut flush to the ground in the late summer prior to seed production, and the cut stem shall immediately be painted or dabbed with glyphosate by a certified herbicide applicator.

Upon removal of invasive shrubs or saplings, if necessary, native shrubs or saplings from the approved restoration planting plan shall be installed to adequately re-vegetate the exposed area. Replacement native shrubs or saplings shall be selected based on the size and type referenced for the area on the approved restoration plan, or functional equivalent native shrub or sapling at the discretion of the landscape architect or wetland scientist conducting the annual monitoring and overseeing the management efforts.

Upon the removal of native groundcover plants or perennials, the native seed mixture referenced on the approved restoration planting plan shall be applied to the managed area and raked in per the manufacturer's specifications.

In creating the initial Condominium annual budget, and for the annual budgets thereafter, the Applicant or Condominium Association, as applicable, shall include a separate line item in the budget for the anticipated expenses relating the satisfying the obligations of this condition.

- I.15 The Applicant shall protect all area trees that will remain on the property per the Town Wetlands Protection Regulations, Section 24 Vegetation Removal and Replacement, protecting trees through securing (not nailing) 2x4 boards, between 6-8 feet in length, around tree base. The boards shall be installed vertically such that one end is installed directly into the ground. Alternative protection measures must be approved by the ZBA.
- I.16 All on-site mitigation as proposed as part of this project shall remain in perpetuity. The approved planting areas, invasive removal areas, the water quality units, and the stormwater system shall remain in perpetuity and if replacement is necessary, shall be subject to the approval of the Commission. This shall be a continuing condition in perpetuity that survives the expiration of this permit.

J. Other General Conditions

- J.1 This Decision will be deemed to be final upon the expiration of the appeal period with no appeal having been filed or upon the final judicial decision following the filing of any appeal, whichever is later, as per 760 CMR 56.05(12)(a). In accordance with 760 CMR 56.05(12)(c), this Comprehensive Permit shall expire three (3) years from the date that the permit becomes final, unless (i) prior to that time construction authorized by the Comprehensive Permit has commenced or (ii) the time period is otherwise tolled in accordance with law. The Applicant may timely apply to the Board for extensions to the Comprehensive Permit as permitted by law.

- J.2 The Applicant shall comply with all local regulations of the Town and its boards, commissions, and departments unless specifically waived herein or as otherwise addressed in these conditions.
- J.3 The Applicant shall copy the Board on all correspondence between the Applicant and any federal, state, or Town official, board, or commission concerning the conditions set forth in this Decision, including but not limited to all testing results, official filings, environmental approvals, and other permits issued for the Project.
- J.4 This Decision prohibits the parking or storage of any unregistered vehicle on the site, and likewise prohibits the service of any vehicles on the site, except during construction. Overnight parking of vehicles on public ways shall be in accordance with Town of Arlington by-laws and regulations.
- J.5 In the event that the Condominium Association (or its Management Company) fails to maintain the stormwater management system for the Project in accordance with its operation and maintenance plan, within fourteen (14) days of notification by the Town to the Condominium Association/Management Company, the Town may conduct emergency maintenance and/or repair, as it deems necessary, and the Applicant shall, prior to the issuance of any certificates of occupancy, convey such easement or other rights in a form mutually acceptable to the Town and the Applicant as may be reasonably necessary to complete such repair and/or maintenance. In the event the Town opts to perform such maintenance in accordance with this paragraph, the Condominium Association shall reimburse the Town within forty-five (45) days for all of its reasonable expenses related to such work.
- J.6 The Project entrance way and interior roads, and drainage systems associated therewith shall remain private, and the Town shall not have any legal responsibility for the operation and maintenance of such. The Town shall also have no obligations relating to the proposed recreational areas on the Property, the construction and operation of which shall be the sole responsibility of the Applicant.

- J.7 If any default, violation or breach of these conditions by the Applicant is not cured within thirty (30) days after notice thereof (or such longer period of time as is reasonably necessary to cure such a default so long as the Applicant is diligently and continuously prosecuting such a cure), then the Town may take one or more of the following steps: (a) enforcement by the Zoning Enforcement Officer pursuant to G. L. c. 40A, § 7; (b) by mandamus or other suit, action or other proceeding at law or in equity, require the Applicant to perform its obligations under these conditions; or (c) take such other action at law or in equity as may appear necessary or desirable to enforce these conditions. If the Town brings any claim to enforce these conditions, and the Town finally prevails in such claim, the Applicant shall reimburse the Town for its reasonable attorneys' fees and expenses incurred in connection with such claim.

DECISION

In consideration of all of the foregoing, including the plans, documents and testimony given during the public hearing, the Board hereby grants the Applicant a comprehensive permit for the construction of fifty (50) home-ownership condominium units in a single structure, along with approximately 1700 square feet of commercial space, pursuant to Chapter 40B, §§ 20-23, for the development described above.

RECORD OF VOTE

The Board of Appeals voted _____, at its public meeting on _____, 2023, to grant a Comprehensive Permit subject to the above-stated Conditions, with this Decision as attested by the signatures below.

Decision on Application for Comprehensive Permit
1025 Mass Ave, LLC
1021-1025 Massachusetts Avenue, Arlington, MA
April __, 2023
Page 28 of 31

Dated: ____, 2023

Filed with the Town Clerk on ____, 2023.

Town Clerk

Notice: Appeals, if any, by any party other than the Applicant, shall be made pursuant to Massachusetts General Laws, Chapter 40A, s. 17, and shall be filed within twenty (20) days after the filing of this notice in the Office of the Town Clerk, Town Hall, Groveland, Massachusetts. Any appeal by the Applicant shall be filed with the Housing Appeals Committee pursuant to G. L. c. 40B, § 23, within twenty (20) days after the filing of this notice in the Office of the Town Clerk.

DECISION ON WAIVERS [SEE UPDATED WAIVER REQUEST LIST]

The Board takes the following action on the waiver requests of local rules and regulations submitted by the Applicant as it has determined necessary for the construction of the Project as approved by the Board:

1. Zoning Bylaws Article 5, Section 5.5.3 – This section prohibits multi-family use in the underlying zoning district. The Applicant requests a waiver of this section to allow the proposed Project consisting of fifty (50) multi-family home-ownership condominium units and associated 1700 square feet of commercial space.

Board Action: Waiver Granted.

2. Zoning Bylaws Article 5, Section 5.5.2 – This section requires a minimum front yard setback of twenty feet (20'). The Applicant requests a waiver to allow a minimum front setback of seventeen feet (17').

Board Action: Waiver Granted.

3. Zoning Bylaws Article 5, Section 5.5.2 – The Applicant also requests a waiver of the maximum height requirement of this section, which limits the height of structures to three (3) stories and thirty-five feet (35'). The Applicant requests a waiver to allow a structure containing five (5) stories and a building height of sixty-six feet four inches (66'4").

Board Action: Waiver Granted.

4. Zoning Bylaws Article 5, Section 5.5.2 – The Applicant also requests a waiver of the Floor Area Ratio (FAR) requirement in this section, which limit FAR to a maximum of .75. The Applicant requests a waiver to allow a FAR of 2.0.

Board Action: Waiver Granted.

5. Zoning Bylaws Article 6, Section 6.1.4 – This Section requires 1.15 parking spaces per one-bedroom unit, 1.5 spaces per two-bedroom unit and two spaces per units having three or more bedrooms. The Applicant requests a waiver to allow a total of fifty (50) parking spaces for the proposed fifty (50) condominium units and associated 1700 square feet of commercial space.

Board Action: Waiver Granted.

6. Bicycle Parking Design Guidelines – These Guidelines do not allow hanging bike spaces to count toward the minimum number of required bike spaces. The Applicant requests a waiver to allow forty-nine (49) bicycle storage units in the basement and twenty-six (26) hanging bicycle spaces in the garage.

Board Action:

7. Town Bylaws, Title V, Article 16, Sections 2 and 4 (Tree Protection and Preservation) – The Applicant requests a waiver of the requirement to make a payment to the tree fund for removal of protected trees, in lieu of the riverfront restoration proposed in the Approved Plans.

Board Action: Waiver Granted.

8. Town Bylaws, Title V, Article 8 (Wetlands Protection) – The Applicant requests a waiver of the procedural requirement of obtaining an Order of Conditions from the Arlington Conservation Commission. No substantive waivers of the Wetlands Protection Bylaw was requested.

Board Action: Waiver Denied as Unnecessary. Pursuant to G. L. c. 40B, §§ 20-23, a comprehensive permit subsumes all local permitting requirements. Accordingly, this comprehensive permit includes an Order of Conditions under the local bylaw, thus no waiver is required.

9. Town Bylaws, Title V, Article 15 (Stormwater Management) – The Applicant requests a waiver of the procedural requirements of obtaining approval of a stormwater management plan. No substantive waivers of this article are requested.

Board Action: Waiver Denied as Unnecessary. Pursuant to G. L. c. 40B, §§ 20-23, a comprehensive permit subsumes all local permitting requirements. Accordingly, this comprehensive permit includes approval of the stormwater management plans under the local bylaw, thus no waiver is required.

10. Arlington Historical Commission – The Applicant notes that the structure at 1021 Massachusetts Avenue is listed on the Historic Structures Inventory, requiring a determination from the Arlington Historical Commission whether the structure is preferably retained under the demolition delay bylaw. The Applicant requests that the Board determine that the structure is not required to go through the demolition delay process.

Board Action:

11. Town Bylaw Title V, Article 14 (Outdoor Lighting) – This bylaw prohibits uplighting. The Applicant requests a waiver to allow some uplighting as shown on the Approved Plans.

Board Action:

12. Sewer Inflow and Infiltration Fees – The Applicant requests a waiver of any applicable sewer inflow and infiltration fees.

Board Action: Waiver Granted.

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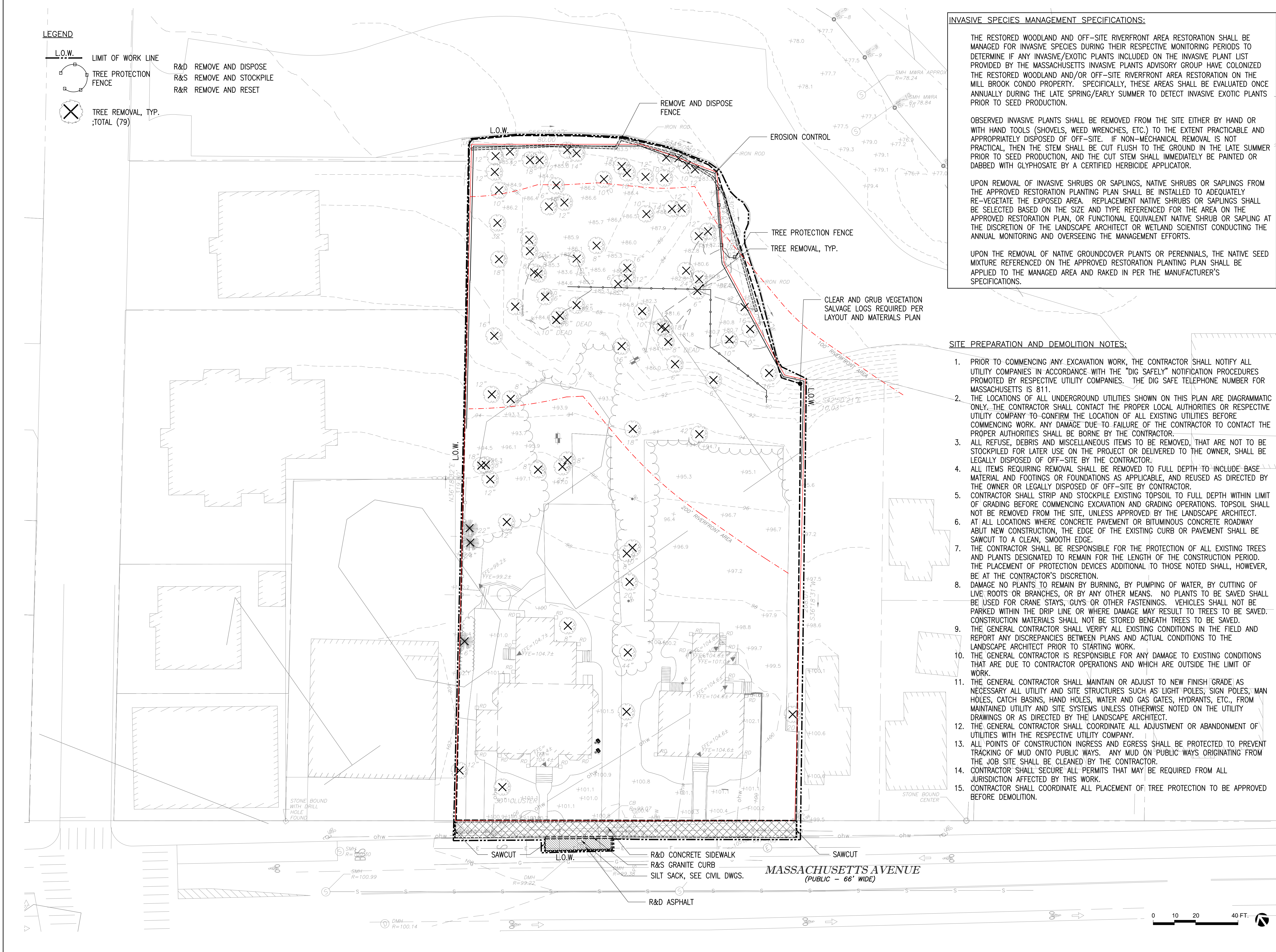
Pursuant to 760 CMR 56.05(2)(h), 1025 Mass Ave, LLC (hereinafter referred to as the "Applicant"), submits the following list of waivers, so-called, to "local requirements and regulations," including without limitation the Town of Arlington Zoning Bylaw, as amended, certain Town By-laws such as the Arlington Wetlands Protection Bylaw (Title V, Article 8 - "Wetlands Bylaw"), Article 16-Tree Protection and Preservation Bylaw, and other local regulations and requirements as defined in M.G.L. c.408, §56.02, including all local rules, ordinances, codes and regulations that are more restrictive than state requirements.

By-Law Regulation	Requirement	Proposed	Waiver
Zoning By-Jaw Article 5, Section 5.5.3	Multifamily/ Apartment use is not allowed as of right or by special permit.	Multi-Family use	Waiver requested. The property is located in the B1 Zone.
Zoning By-law Article 5, Section 5.5.2	The By-law requires a Front Yard Setback of 20 feet	The Applicant proposes a Front yard setback of 17 feet	Waiver requested, see Footnote 1
Zoning By-law Article 5, Section 5.5.2	The By-law requires a maximum height of 3 stories or 35 feet	The Applicant proposes a 5-story building with a proposed height of 66'-4"	Waiver requested, see Footnote 1
Zoning By-law Article 5, Section 5.5.2	The By-law allows for a maximum FAR of 0.75	The Applicant proposes a FAR of 2	Waiver requested, see Footnote 1
Zoning By-law Article 5, Section 5.3.17	The By-law requires for buildings in excess of three (3) stories in height, an additional seven and one half (7.5) foot step back for the upper beginning at the fourth (4th) story.	A set back of over 7.5 feet is provided at the fifth floor and no setback at the fourth Floor.	Waiver requested of upper floor set back requirement.
Zoning By-law Article 6, Section 6.1.4	The By-law requires 1 parking space per unit and 1 space per 300 sq ft of retail for a total of 57 spaces	The Applicant proposes 1 parking space per unit and 1 retail space for a total of 51 spaces.	Waiver requested, see Footnote 2
Zoning By-law Article 6, Section 6.1.12	The By-law requires a total of 52 bicycle parking spaces and certain design requirements	The Applicant proposes 50 bicycle parking spaces without full compliance with the design requirements	Waiver requested to provided bicycle parking spaces as shown on the project drawings.

Bicycle Parking Design Guidelines	The long-term bicycle storage design guidelines do not permit hanging bicycle storage.	The Applicant proposes 49 bicycle storage units in the basement & 26 hanging bicycle racks in the garage	Waiver requested, see Footnote 2
Town By-law, Title V, Article 16, Sections 2 and 4 Tree Protection and Preservation	These sections prohibit removal of "Protected Trees" unless removal is authorized through the approval of a Tree Plan. Construction and demolition require the approval of a Tree Plan prior to or concurrent with application for a building permit. Protected Trees require a payment to a Tree Fund.	The Applicant seeks to remove trees the majority of which are non-native species in order to construct the building and complete the riverfront restoration. The Applicant seeks that a Tree Plan approval be included in the comprehensive permit and a waiver of the payment to the Tree Fund.	Waiver requested. Absent the removal of the trees, the project cannot be constructed. The payment to the tree fund effects the financial viability of the project, as significant dollars are already committed to the riverfront restoration plan on the property and along Mill Brook.
Town Bylaw Title V, Article 8 Wetlands Protection	The project is within Conservation Commission jurisdiction requiring an Order of Conditions	The Applicant seeks that the required Order of Conditions be included in the comprehensive permit	Waive requirement for an Order of Conditions to be issued by the Conservation Commission. Proposed development meets the performance standards for issuance of an Order of Conditions
Town Bylaw Title V, Article 15 Stormwater Management	The project requires a stormwater management approval	The Applicant seeks that the required stormwater management be included in the comprehensive permit	Waive requirement for a Stormwater Permit to be issued by the Town Engineer. Proposed development meets the performance standards for issuance of a Stormwater Permit
Town Bylaw Title V, Article 12 Noise Abatement	Project construction hours are 9:00 am to 5:00 pm on Saturdays and 8:00 am to 6:00 pm on weekdays.	The Applicant seeks project construction hours to be 8:00 am to 5:00 pm on Saturdays and 7:00 am to 6:00 pm on weekdays	Waive construction start time of 9:00 am on Saturdays and 8:00 am on weekdays.
Arlington Historical Commission	1021 Massachusetts Avenue is listed on the Historic Structures Inventory	The Project requires the demolition of 1021 Massachusetts Ave	Waive requirement of demolition delay or waive requirement that the Arlington Historical Commission determine that the demolition of the building would

			not be detrimental to the historical or architectural heritage or resources of the Town and include such determination in the comprehensive permit.
Town Bylaw Title V, Article 14 Outdoor Lighting	Up-lighting is prohibited	The Applicant seeks some up-lighting on the Project	Waiver Requested from the up-lighting prohibition
Sewer inflow and infiltration fees	No formal requirement	No fee required	Waiver requested from request for inflow and infiltration fees by Engineering

1. Absent waivers of these zoning requirements, the proposed project would be uneconomical, would not result in the limited profit provided for in the regulations and the Applicant would be unable to secure financing for the construction of the proposed project.
2. The Applicant seeks a waiver of the required number of parking spaces and the required long-term bicycle storage design guidelines as the footprint of the building could not accommodate additional parking beyond what is provided in the table



INVASIVE SPECIES MANAGEMENT SPECIFICATIONS:

THE RESTORED WOODLAND AND OFF-SITE RIVERFRONT AREA RESTORATION SHALL BE MANAGED FOR INVASIVE SPECIES DURING THEIR RESPECTIVE MONITORING PERIODS TO DETERMINE IF ANY INVASIVE/EXOTIC PLANTS INCLUDED ON THE INVASIVE PLANT LIST PROVIDED BY THE MASSACHUSETTS INVASIVE PLANTS ADVISORY GROUP HAVE COLONIZED THE RESTORED WOODLAND AND/OR OFF-SITE RIVERFRONT AREA RESTORATION ON THE MILL BROOK CONDO PROPERTY. SPECIFICALLY, THESE AREAS SHALL BE EVALUATED ONCE ANNUALLY DURING THE LATE SPRING/EARLY SUMMER TO DETECT INVASIVE EXOTIC PLANTS PRIOR TO SEED PRODUCTION.

OBSERVED INVASIVE PLANTS SHALL BE REMOVED FROM THE SITE EITHER BY HAND OR WITH HAND TOOLS (SHOVELS, WEED WRENCHES, ETC.) TO THE EXTENT PRACTICABLE AND APPROPRIATELY DISPOSED OF OFF-SITE. IF NON-MECHANICAL REMOVAL IS NOT PRACTICAL, THEN THE STEM SHALL BE CUT FLUSH TO THE GROUND IN THE LATE SUMMER PRIOR TO SEED PRODUCTION, AND THE CUT STEM SHALL IMMEDIATELY BE PAINTED OR DABBED WITH GLYPHOSATE BY A CERTIFIED HERBICIDE APPLICATOR.

UPON REMOVAL OF INVASIVE SHRUBS OR SAPLINGS, NATIVE SHRUBS OR SAPLINGS FROM THE APPROVED RESTORATION PLANTING PLAN SHALL BE INSTALLED TO ADEQUATELY RE-VEGETATE THE EXPOSED AREA. REPLACEMENT NATIVE SHRUBS OR SAPLINGS SHALL BE SELECTED BASED ON THE SIZE AND TYPE REFERENCED FOR THE AREA ON THE APPROVED RESTORATION PLAN, OR FUNCTIONAL EQUIVALENT NATIVE SHRUB OR SAPLING AT THE DISCRETION OF THE LANDSCAPE ARCHITECT OR WETLAND SCIENTIST CONDUCTING THE ANNUAL MONITORING AND OVERSEEING THE MANAGEMENT EFFORTS.

UPON THE REMOVAL OF NATIVE GROUNDCOVER PLANTS OR PERENNIALS, THE NATIVE SEED MIXTURE REFERENCED ON THE APPROVED RESTORATION PLANTING PLAN SHALL BE APPLIED TO THE MANAGED AREA AND RAKED IN PER THE MANUFACTURER'S SPECIFICATIONS.

SITE PREPARATION AND DEMOLITION NOTES:

1. PRIOR TO COMMENCING ANY EXCAVATION WORK, THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN ACCORDANCE WITH THE "DIG SAFELY" NOTIFICATION PROCEDURES PROMOTED BY RESPECTIVE UTILITY COMPANIES. THE DIG SAFE TELEPHONE NUMBER FOR MASSACHUSETTS IS 811.
2. THE LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE DIAGRAMMATIC ONLY. THE CONTRACTOR SHALL CONTACT THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANY TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
3. ALL REFUSE, DEBRIS AND MISCELLANEOUS ITEMS TO BE REMOVED, THAT ARE NOT TO BE STOCKPILED FOR LATER USE ON THE PROJECT OR DELIVERED TO THE OWNER, SHALL BE LEGALLY DISPOSED OF OFF-SITE BY THE CONTRACTOR.
4. ALL ITEMS REQUIRING REMOVAL SHALL BE REMOVED TO FULL DEPTH TO INCLUDE BASE MATERIAL AND FOOTINGS OR FOUNDATIONS AS APPLICABLE, AND REUSED AS DIRECTED BY THE OWNER OR LEGALLY DISPOSED OF OFF-SITE BY CONTRACTOR.
5. CONTRACTOR SHALL STRIP AND STOCKPILE EXISTING TOPSOIL TO FULL DEPTH WITHIN LIMIT OF GRADING BEFORE COMMENCING EXCAVATION AND GRADING OPERATIONS. TOPSOIL SHALL NOT BE REMOVED FROM THE SITE, UNLESS APPROVED BY THE LANDSCAPE ARCHITECT.
6. AT ALL LOCATIONS WHERE CONCRETE PAVEMENT OR BITUMINOUS CONCRETE ROADWAY ABUT NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAWCUT TO A CLEAN, SMOOTH EDGE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES AND PLANTS DESIGNATED TO REMAIN FOR THE LENGTH OF THE CONSTRUCTION PERIOD. THE PLACEMENT OF PROTECTION DEVICES ADDITIONAL TO THOSE NOTED SHALL, HOWEVER, BE AT THE CONTRACTOR'S DISCRETION.
8. DAMAGE NO PLANTS TO REMAIN BY BURNING, BY PUMPING OF WATER, BY CUTTING OF LIVE ROOTS OR BRANCHES, OR BY ANY OTHER MEANS. NO PLANTS TO BE SAVED SHALL BE USED FOR CRANE STAYS, GUYS OR OTHER FASTENINGS. VEHICLES SHALL NOT BE PARKED WITHIN THE DRIP LINE OR WHERE DAMAGE MAY RESULT TO TREES TO BE SAVED. CONSTRUCTION MATERIALS SHALL NOT BE STORED BENEATH TREES TO BE SAVED.
9. THE GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE LANDSCAPE ARCHITECT PRIOR TO STARTING WORK.
10. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING CONDITIONS THAT ARE DUE TO CONTRACTOR OPERATIONS AND WHICH ARE OUTSIDE THE LIMIT OF WORK.
11. THE GENERAL CONTRACTOR SHALL MAINTAIN OR ADJUST TO NEW FINISH GRADE AS NECESSARY ALL UTILITY AND SITE STRUCTURES SUCH AS LIGHT POLES, SIGN POLES, MAN HOLES, CATCH BASINS, HAND HOLES, WATER AND GAS GATES, HYDRANTS, ETC., FROM MAINTAINED UTILITY AND SITE SYSTEMS UNLESS OTHERWISE NOTED ON THE UTILITY DRAWINGS OR AS DIRECTED BY THE LANDSCAPE ARCHITECT.
12. THE GENERAL CONTRACTOR SHALL COORDINATE ALL ADJUSTMENT OR ABANDONMENT OF UTILITIES WITH THE RESPECTIVE UTILITY COMPANY.
13. ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT TRACKING OF MUD ONTO PUBLIC WAYS. ANY MUD ON PUBLIC WAYS ORIGINATING FROM THE JOB SITE SHALL BE CLEANED BY THE CONTRACTOR.
14. CONTRACTOR SHALL SECURE ALL PERMITS THAT MAY BE REQUIRED FROM ALL JURISDICTION AFFECTED BY THIS WORK.
15. CONTRACTOR SHALL COORDINATE ALL PLACEMENT OF TREE PROTECTION TO BE APPROVED BEFORE DEMOLITION.

1021-1025
MASSACHUSETTS
AVENUE

ARLINGTON, MASSACHUSETTS

MAJ INVESTMENT, LLC

3	REVISION #3	04.13.2023
2	REVISION #2	02.17.2023
1	REVISION #1	01.23.2023

NO.	REVISION	DATE
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kzla
Kylie Zick Landscape Architecture, Inc.
36 Brimfield Street Suite 202
Boston, MA 02108
617 451-1018 Tel
www.kyiezick.com



DRAFT CONSTRUCTION
DOCUMENT SET

Job Number:	
Project: 1021-1025 MASSACHUSETTS AVENUE	
Drawn By: YL	Checked By: KZ
Date: SEPTEMBER 8, 2022	
Scale: 1"=20'-0"	
Drawing Title:	

SITE PREPARATION PLAN

ARLINGTON, MASSACHUSETTS
MAJ INVESTMENT, LLC

MAJ INVESTMENT, LLC

3	REVISION #3	04.13.2023
2	REVISION #2	02.17.2023
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NO.	REVISION	DATE

kzla
Kyle Zick Landscape Architecture, Inc.
36 Bromfield Street Suite 202
Boston, MA 02108
617 451-1018 Tel
www.kylezick.com

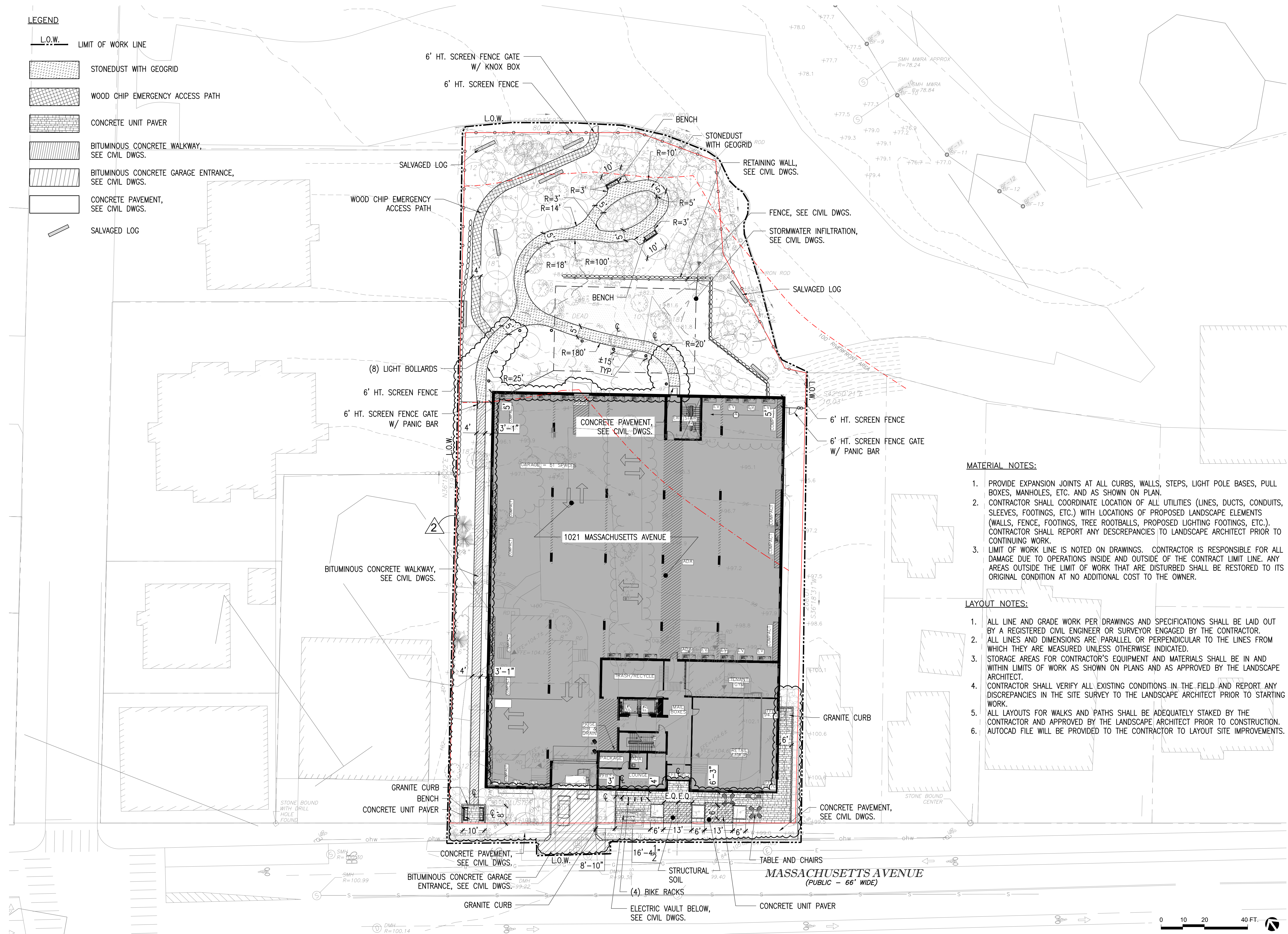


DRAFT CONSTRUCTION
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Drawing Title:	

LAYOUT AND MATERIAL PLAN

2

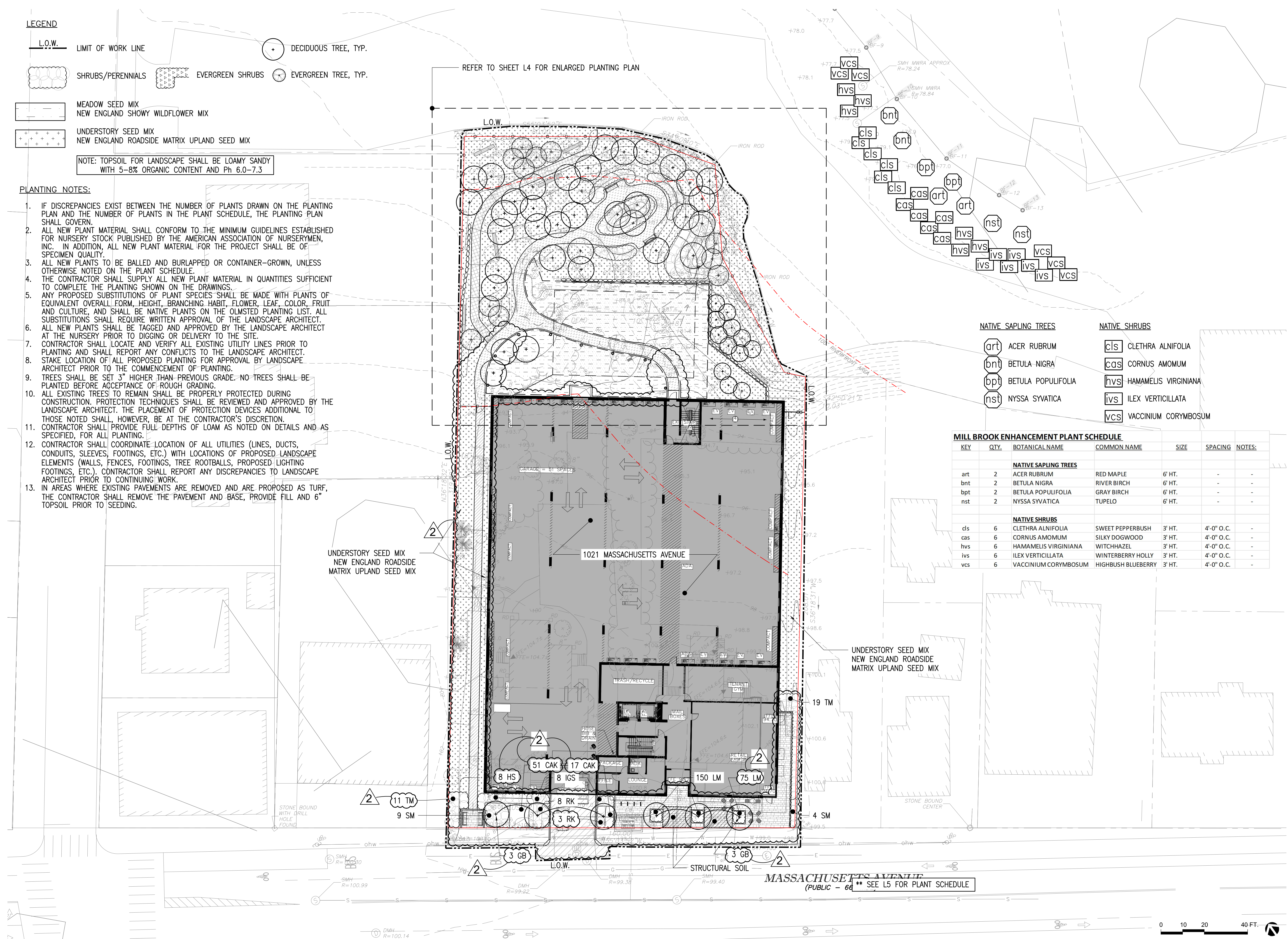


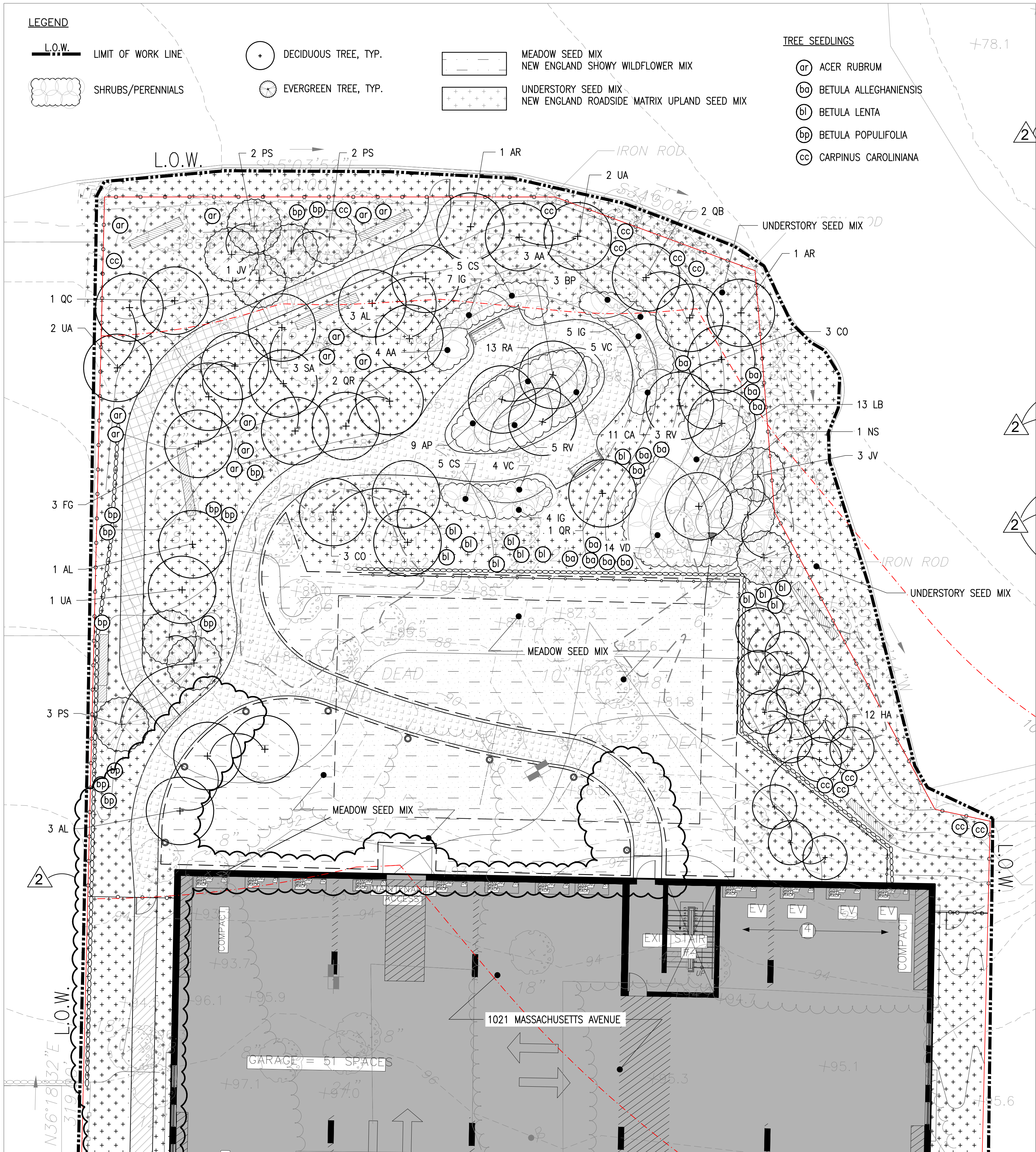
ARLINGTON, MASSACHUSETTS
MAJ INVESTMENT, LLC

ARLINGTON, MASSACHUSETTS
MAJ INVESTMENT, LLC

PLANTING PLAN

L3





PLANT SCHEDULE					
KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
DECIDUOUS TREES					
AR	2	ACER RUBRUM	RED MAPLE	2" CAL.	-
AL	7	AMELANCHIER CANADENSIS L. MEDIK.	SHADBLow SERVICEBERRY	12" HT.	-
BP	3	BETULA PAPIRIFERA	PAPER BIRCH	12" HT.	-
CO	6	CARYA OVATA	SHAGBARK HICKORY	1" CAL.	-
FG	3	FAGUS GRANDIFLORA	AMERICAN BEECH	1" CAL.	-
GB	6	GINKGO BILOBA 'PRINCETON SENTRY'	PRINCETON SENTRY GINKGO	3" CAL.	-
HA	12	HAMAMELIS X INTERMEDIA 'ARNOLD PROMISE'	WITCHHAZEL	8" B&B	-
NS	1	NYSSA SYLVATICA	SOURGUM	2" CAL.	-
QB	2	QUERCUS BICOLOR	SWAMP WHITE OAK	2" CAL.	-
QC	1	QUERCUS COCCINEA	SCARLET OAK	2" CAL.	-
QR	3	QUERCUS RUBRA	RED OAK	2" CAL.	-
SA	3	SASSAFRAS ALBIDUM	SASSAFRAS	1" CAL.	-
UA	5	ULMUS AMERICANA 'PRINCETON'	PRINCETON AMERICAN ELM	2" CAL.	-
TREE SEEDLINGS					
ar	12	ACER RUBRUM	RED MAPLE	4" HT.	-
ba	12	BETULA ALLEGHANIENSIS	YELLOW BIRCH	4" HT.	-
bl	12	BETULA LENTA	SWEET BIRCH	4" HT.	-
bp	12	BETULA POPULIFOLIA	GRAY BIRCH	4" HT.	-
cc	12	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	4" HT.	-
EVERGREEN TREES					
JV	4	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	6" HT.	-
PS	7	PINUS STROBUS	EASTERN WHITE PINE	6" HT.	-
SHRUBS					
AA	7	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	36" HT.	5'-0" O.C.
AP	9	AESCULUS PARVIFLORA	BOTTLEBRUSH BUCKEYE	36" HT.	4'-0" O.C.
CA	11	CLETHRA ALNIFOLIA	SUMMERSWEET	24" HT.	3'-0" O.C.
CAK	68	CALAMAGROSTIS X ACUTIFLORA 'KAL FOERSTEER'	FEATHER REED GRASS	24" HT.	1'-6" O.C.
CS	10	CORNUS SERICEA	REDTWIG DOGWOOD	36" HT.	4'-0" O.C.
HS	8	HIBISCUS SYRIACUS	LIL' KIM ROSE OF SHARON	36" HT.	4'-0" O.C.
IG	16	ILEX GLABRA	INKBERRY	3 GAL.	4'-0" O.C.
IGS	8	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	3 GAL.	4'-0" O.C.
LB	13	LINDERA BENZOIN	SPICEBUSH	36" HT.	6'-0" O.C.
RA	13	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	24" SPREAD	3'-0" O.C.
RK	11	ROSA 'KNOCK OUT'	WHITE KNOCK OUT ROSE	24" HT.	4'-0" O.C.
RV	8	ROSA VIRGINIANA	VIRGINIA ROSE	36" HT.	5'-0" O.C.
SM	13	SYRINGA MEYERI 'PALIBIN'	DWARF KOREAN LILAC	36" HT.	4'-0" O.C.
TM	30	TAXUS X MEDIA 'HICKSII'	HICKS YEW	36" HT.	4'-0" O.C.
VC	9	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	24" HT.	4'-0" O.C.
VD	14	VIBURNUM DENTATUM	ARROWWOOD	36" HT.	5'-0" O.C.
GRASS					
LM	225	LIRIOPE MUSCARI	BIG BLUE LILYTURF	PLUGS	8" O.C.

1021-1025
MASSACHUSETTS
AVENUE

ARLINGTON, MASSACHUSETTS
MAJ INVESTMENT, LLC

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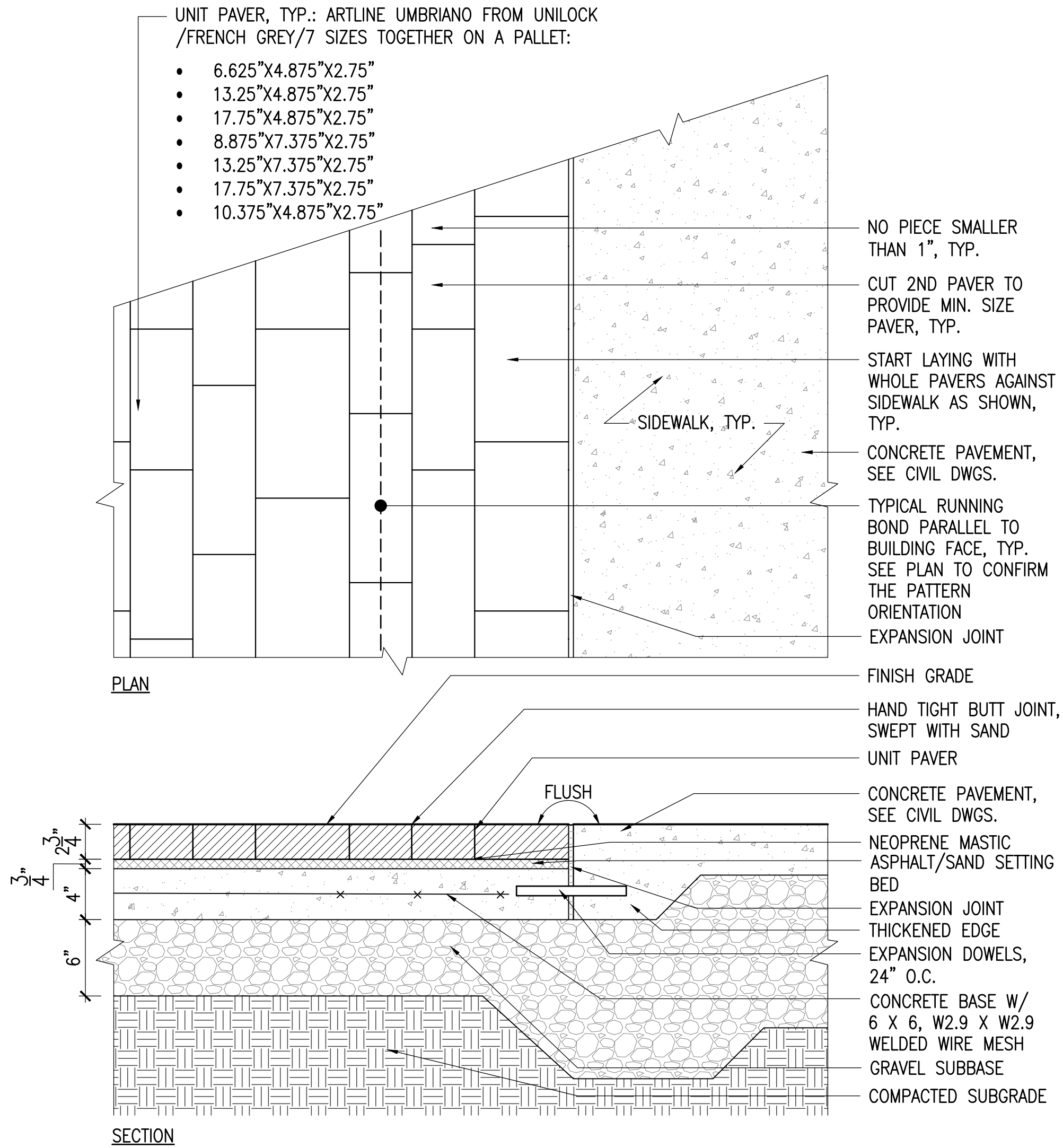
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Drawn By: YL
Checked By: KZ
Date: SEPTEMBER 8, 2022
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Drawing Title:

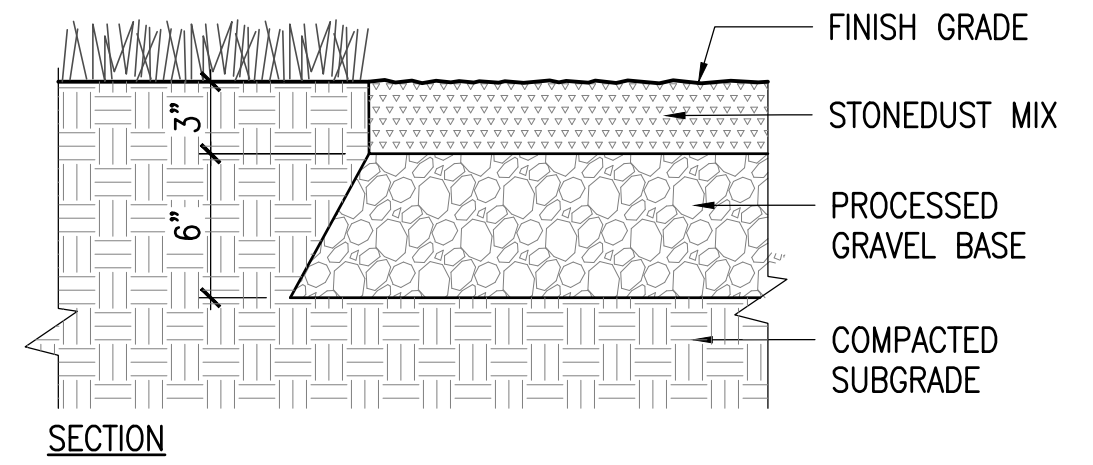
ENLARGED PLANTING PLAN

L4

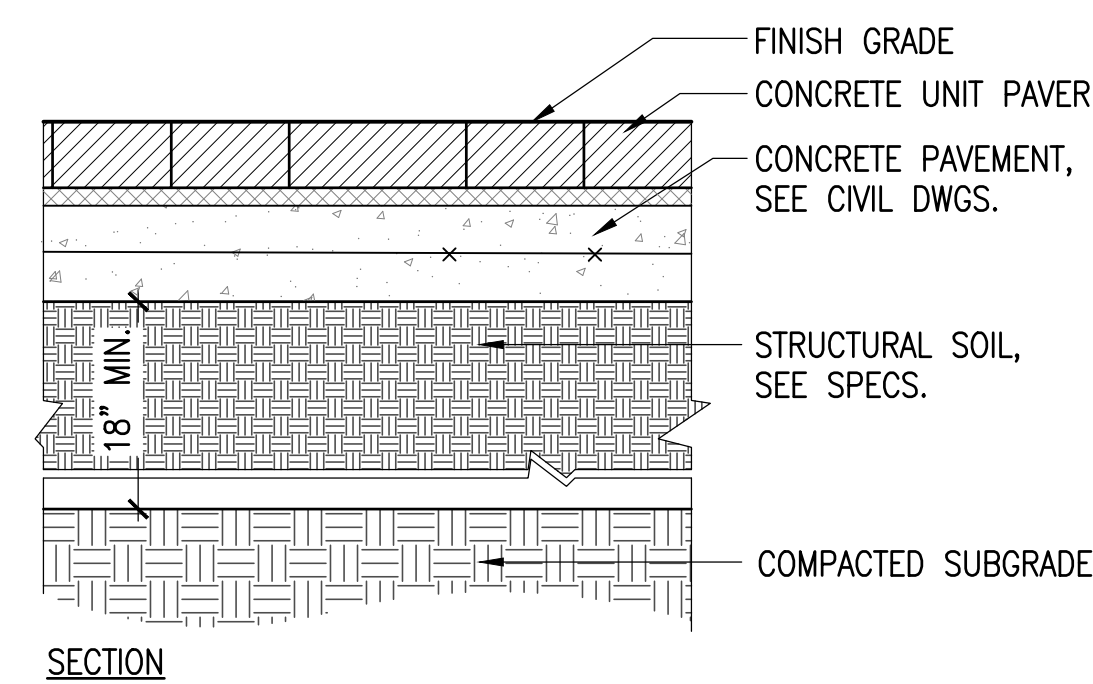




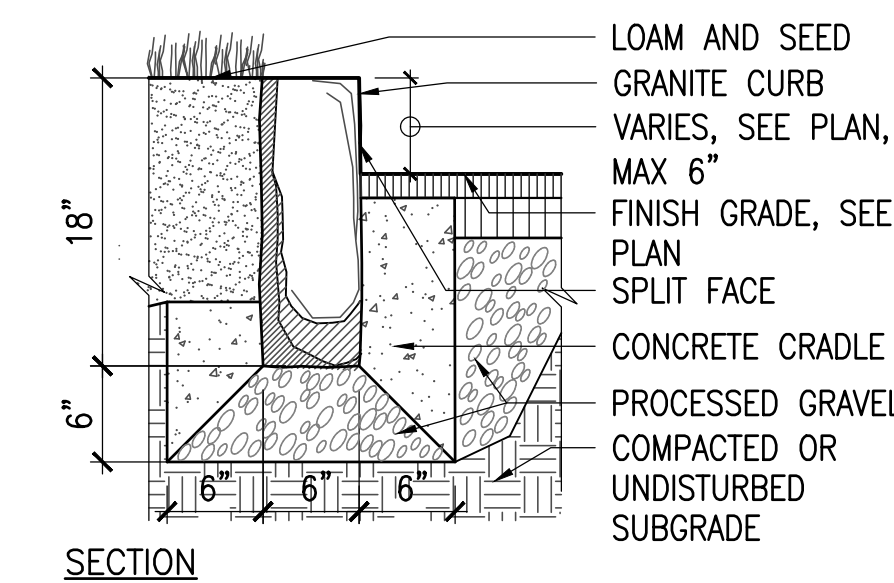
1 CONCRETE UNIT PAVER
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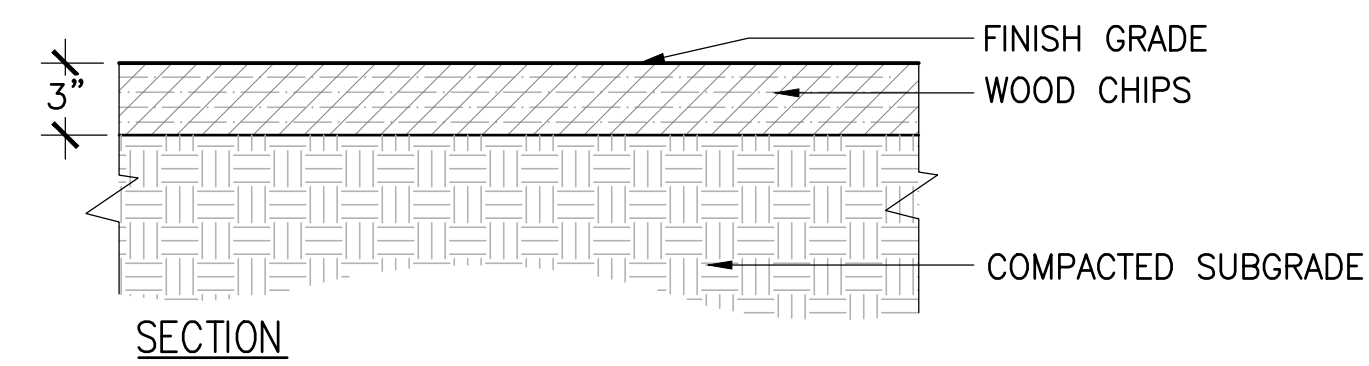
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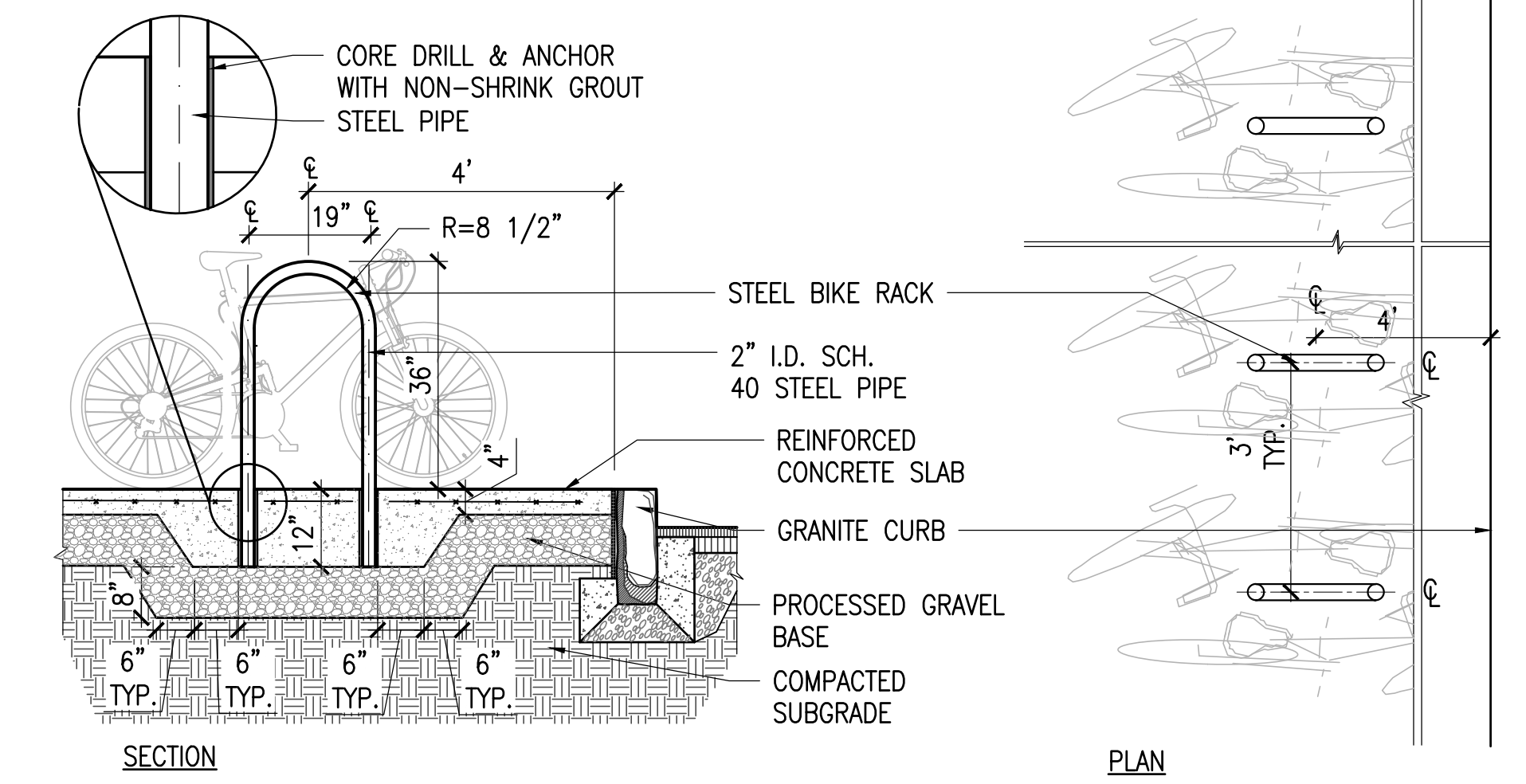
4 STRUCTURAL SOIL
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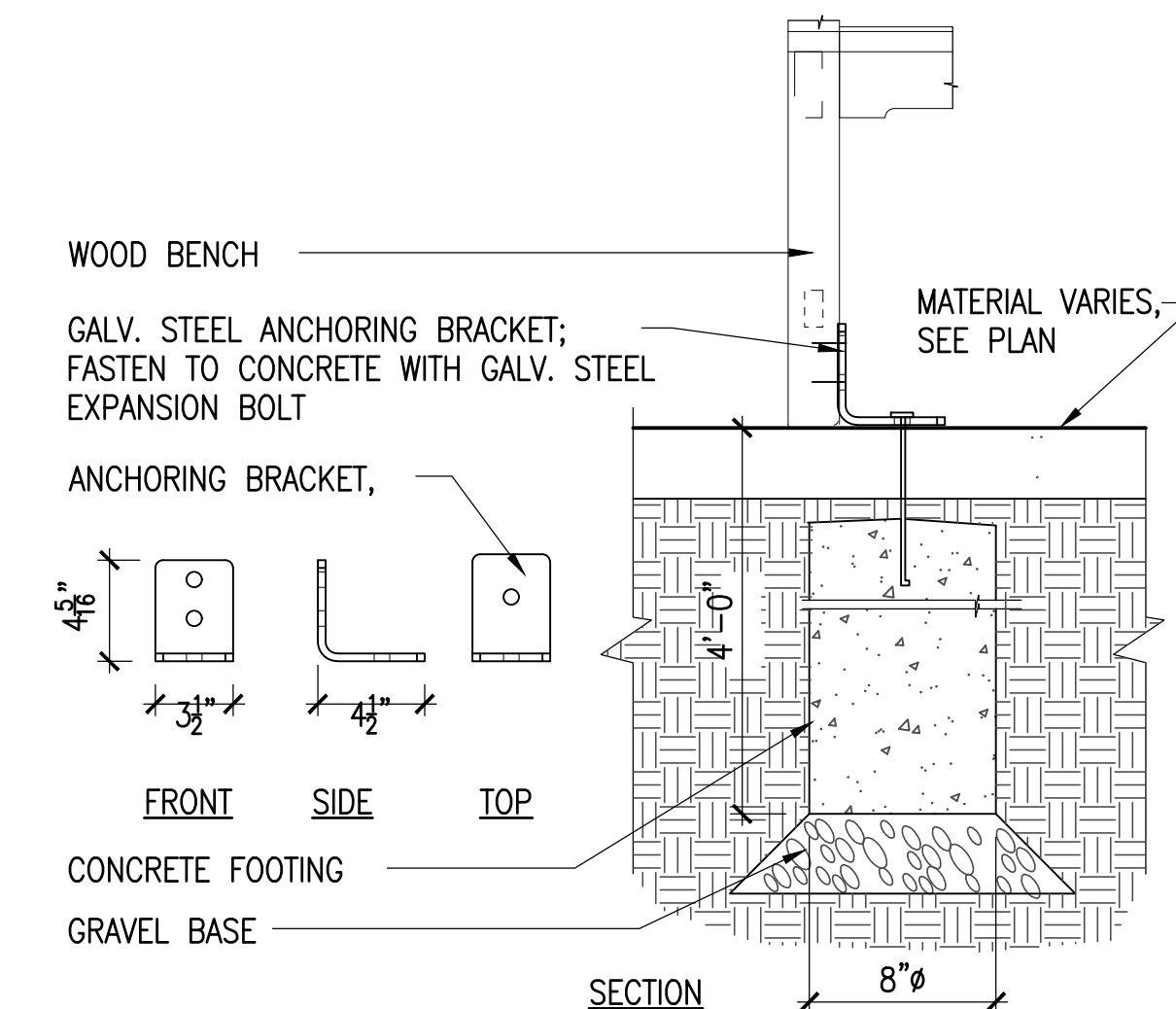
5 GRANITE CURB
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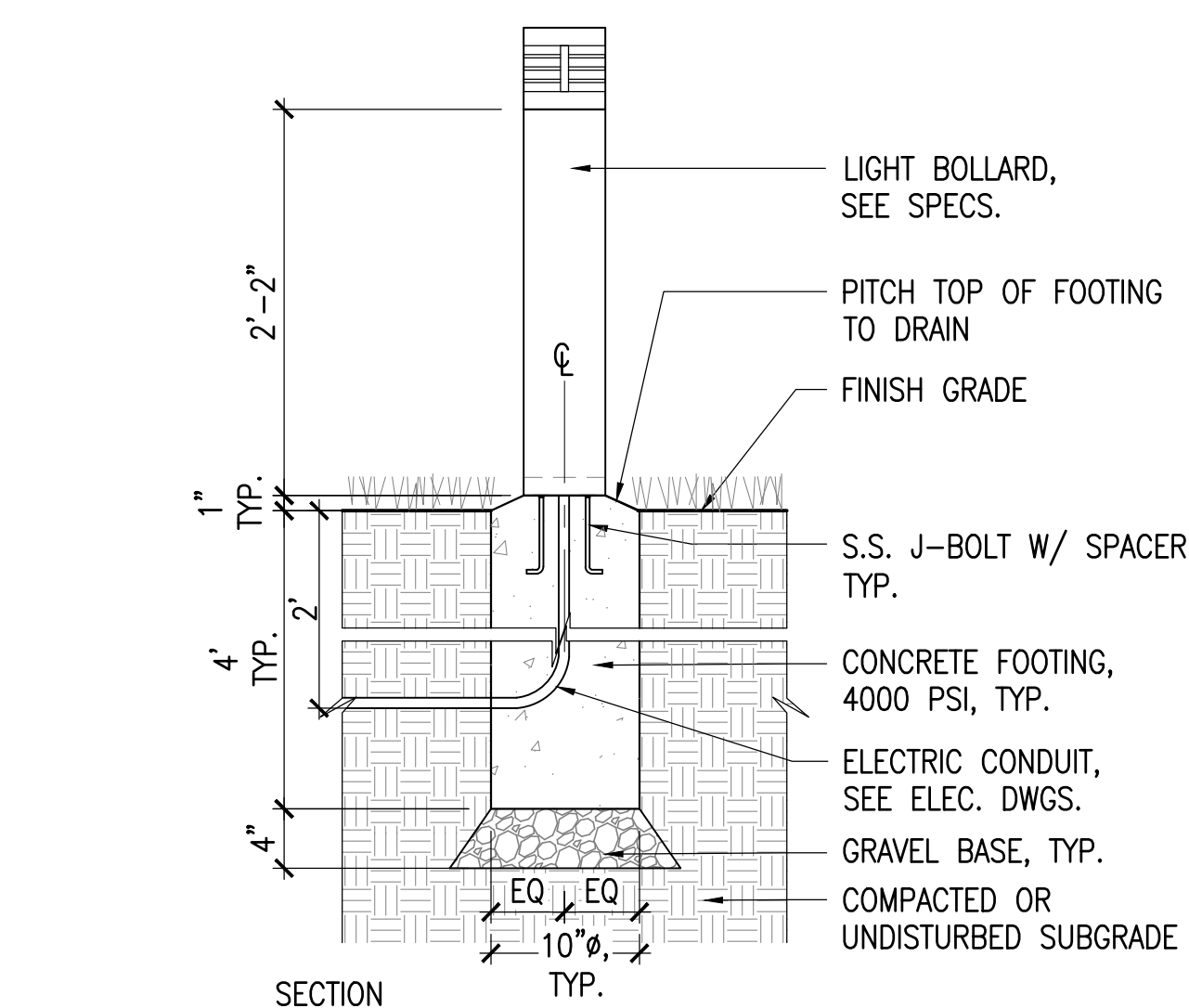
6 WOOD CHIP EMERGENCY ACCESS PATH
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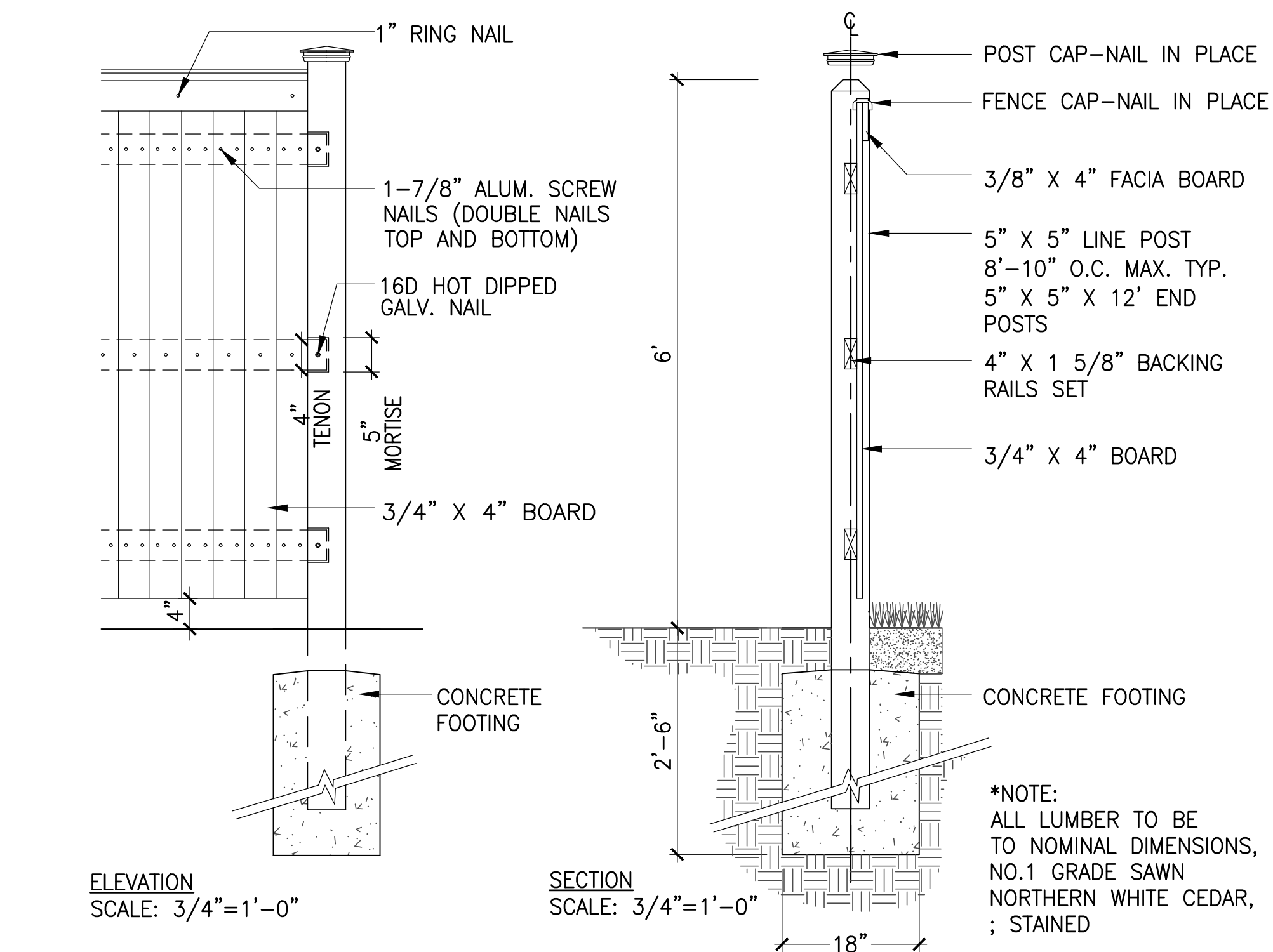
7 BIKE RACK
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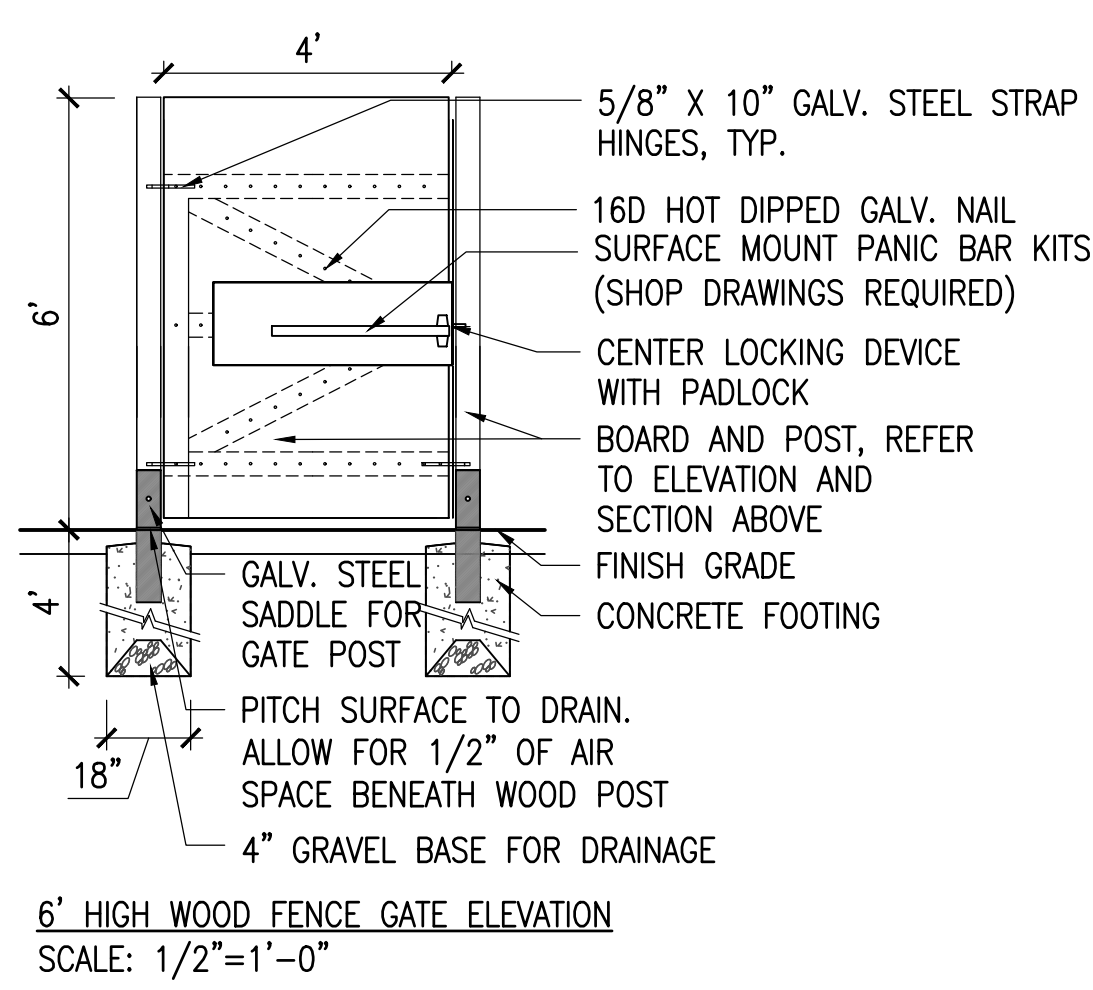
8 WOOD BENCH ANCHORING
SCALE: 1-1/2"=1'-0"



9 BOLLARD LIGHT FOOTING
SCALE: 1"=1'-0"



2 6' HT. SCREEN FENCE / GATE - CEDAR
SCALE: AS SHOWN



6' HIGH WOOD FENCE GATE ELEVATION
SCALE: 1/2"=1'-0"

1021-1025
MASSACHUSETTS
AVENUE

ARLINGTON, MASSACHUSETTS

MAJ INVESTMENT, LLC

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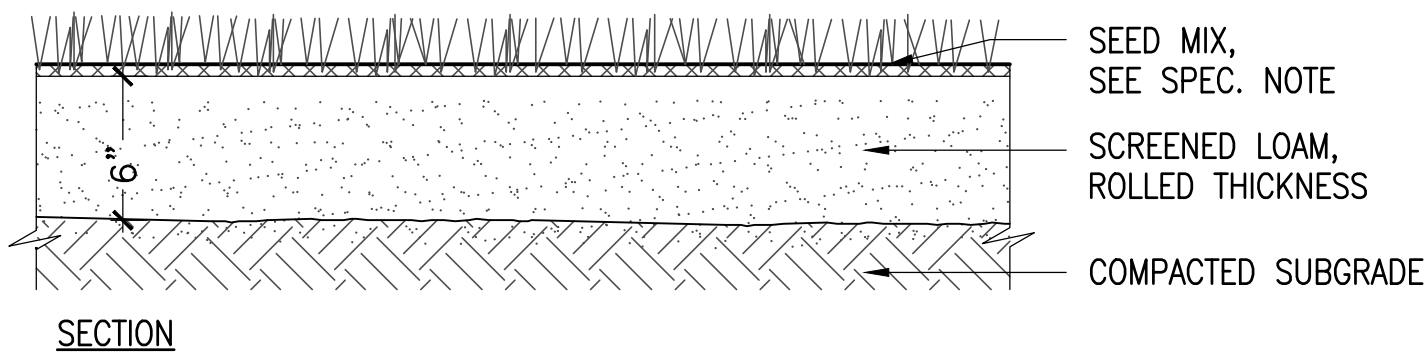
DRAFT CONSTRUCTION
DOCUMENT SET

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Project: 1021-1025 MASSACHUSETTS AVENUE
Drawn By: YL Checked By: KZ
Date: SEPTEMBER 8, 2022
Scale: 1"=20'-0"

Drawing Title:

DETAILS

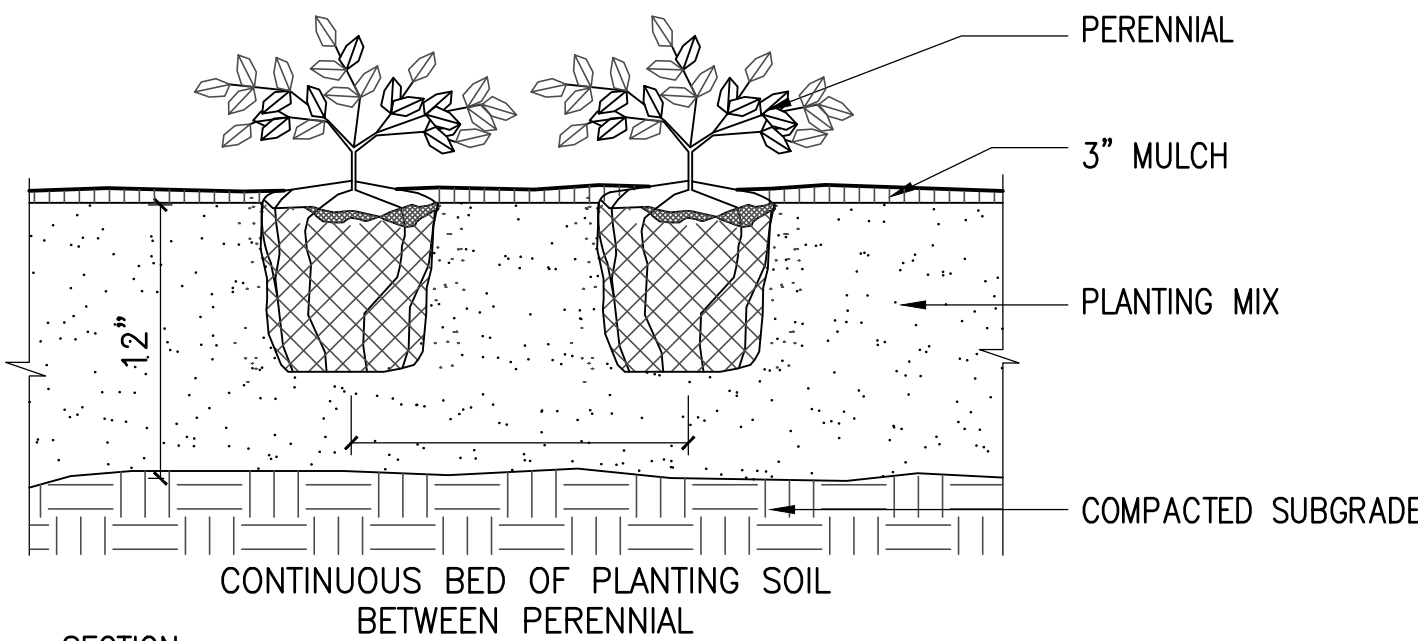
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SECTION

1 LAWN

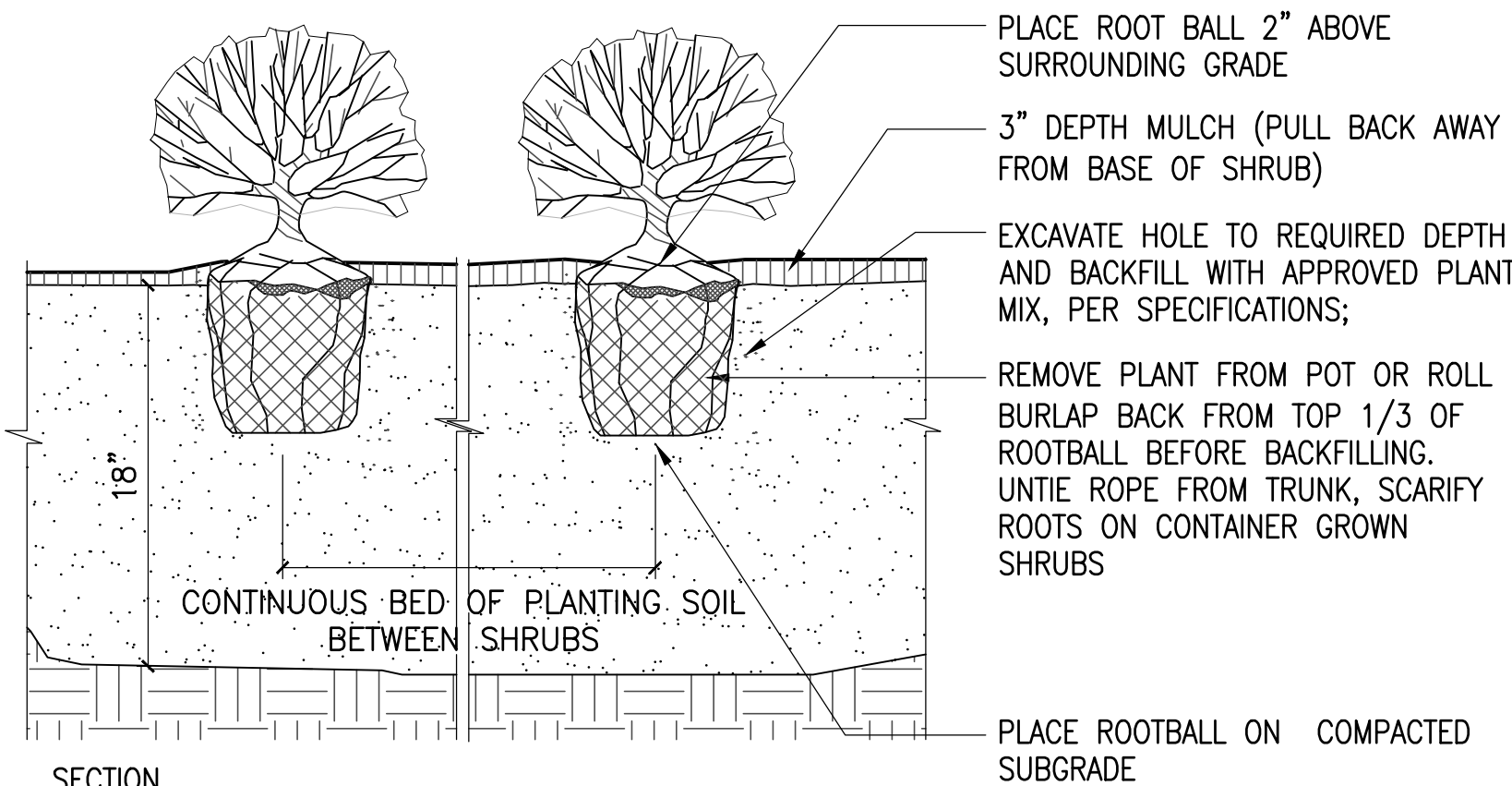
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SECTION

2 PERENNIAL PLANTING

SCALE: 1 1/2"=1'-0"

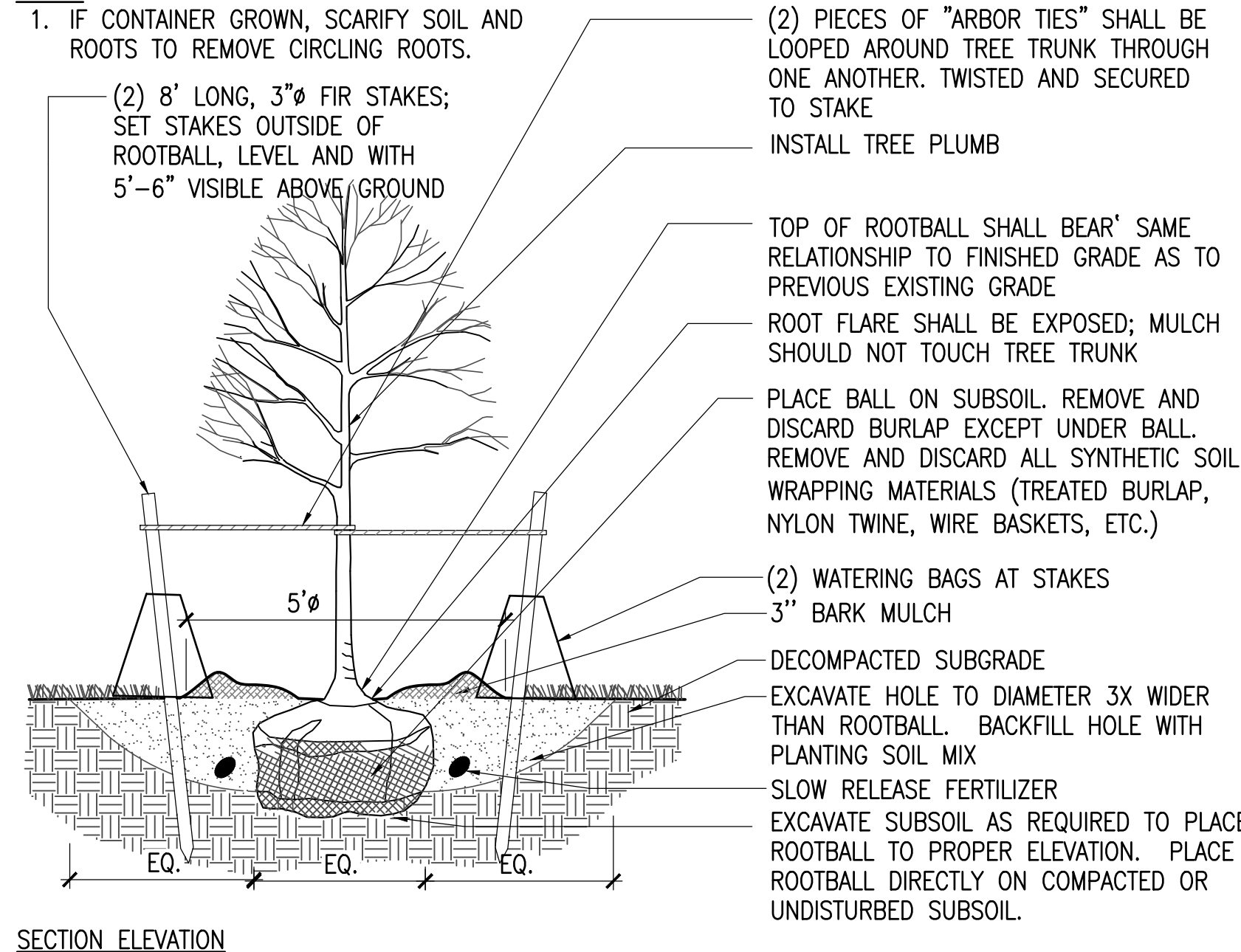


SECTION

3 SHRUB PLANTING

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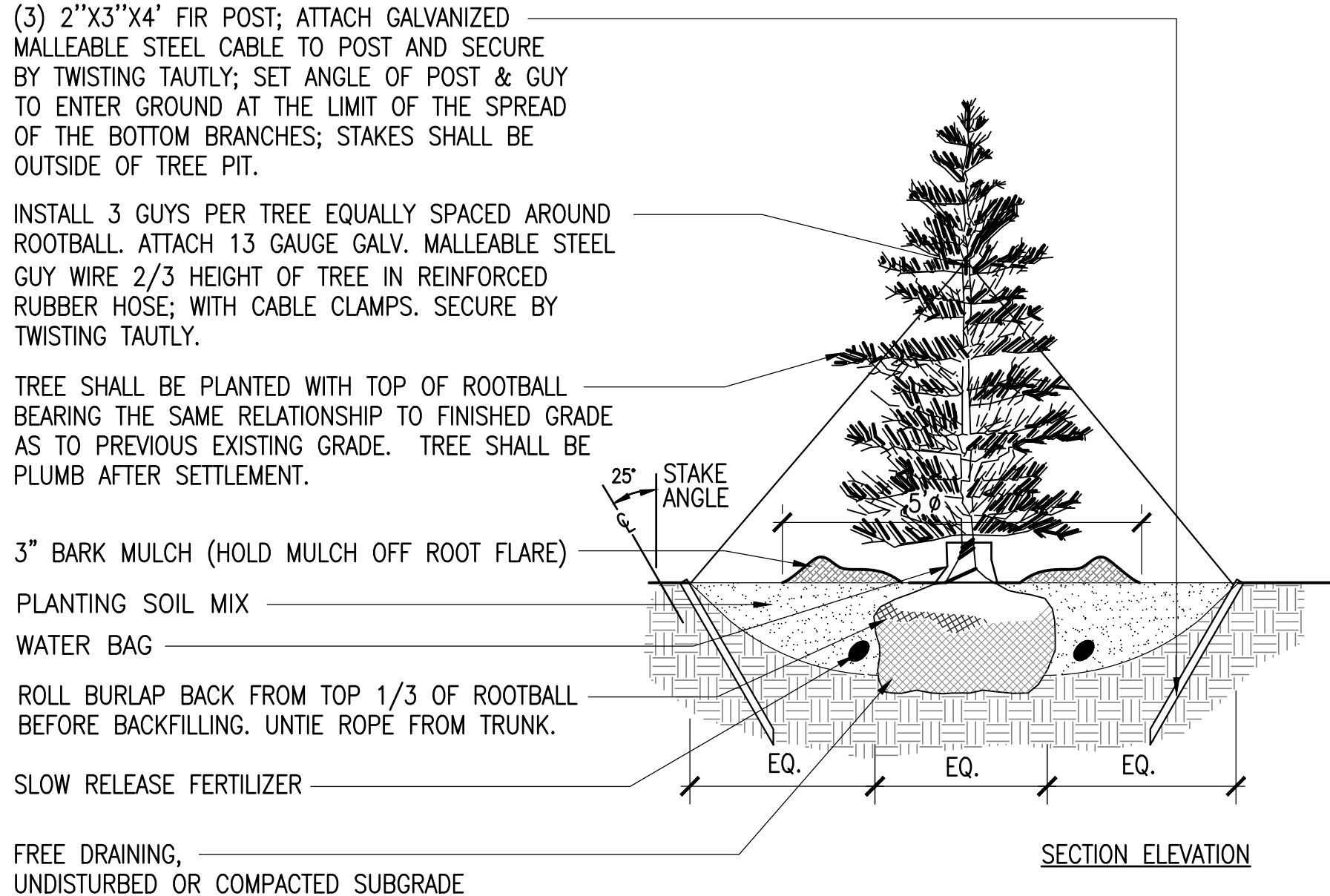
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SECTION ELEVATION

4 DECIDUOUS TREE PLANTING

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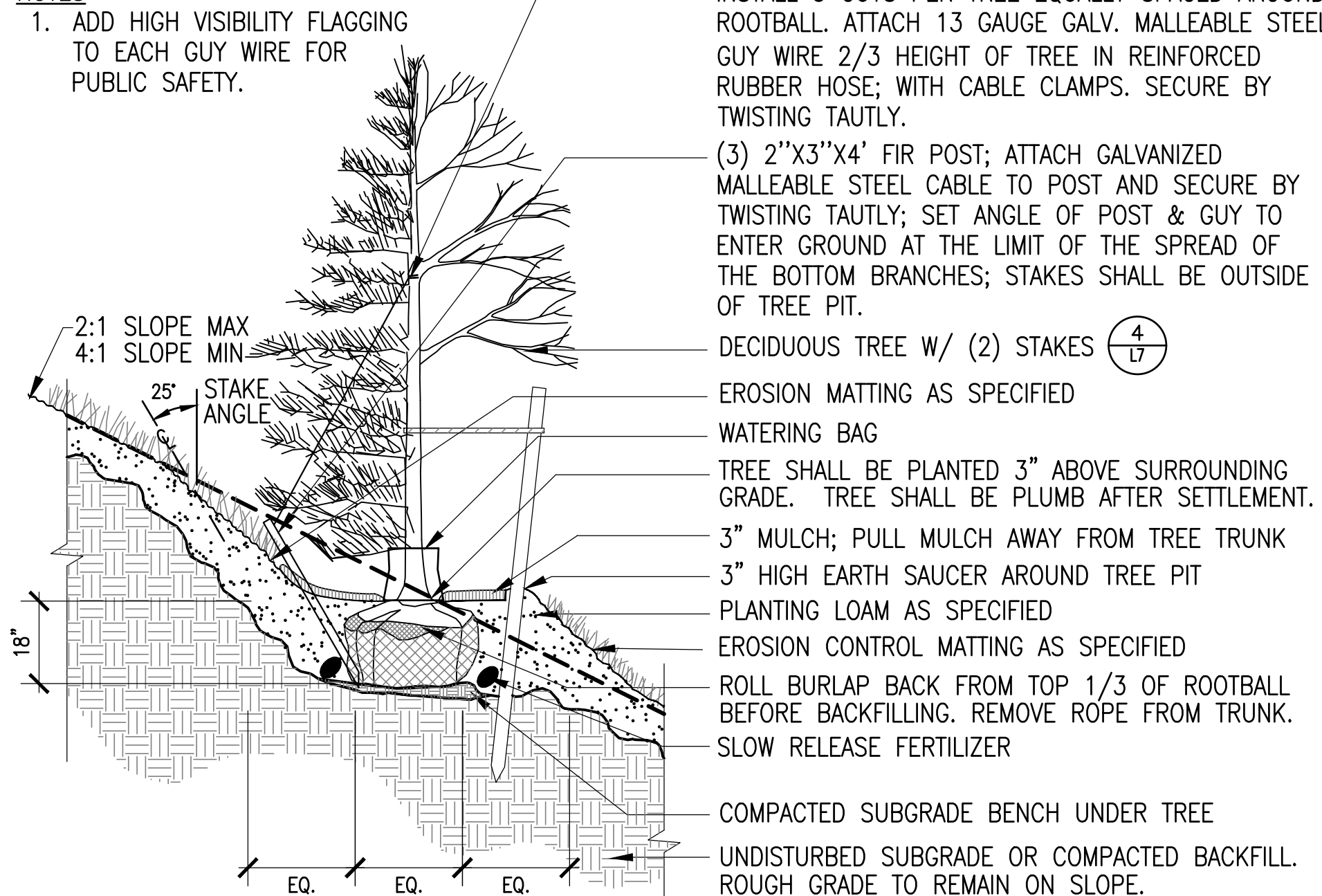


SECTION ELEVATION

5 EVERGREEN TREE PLANTING

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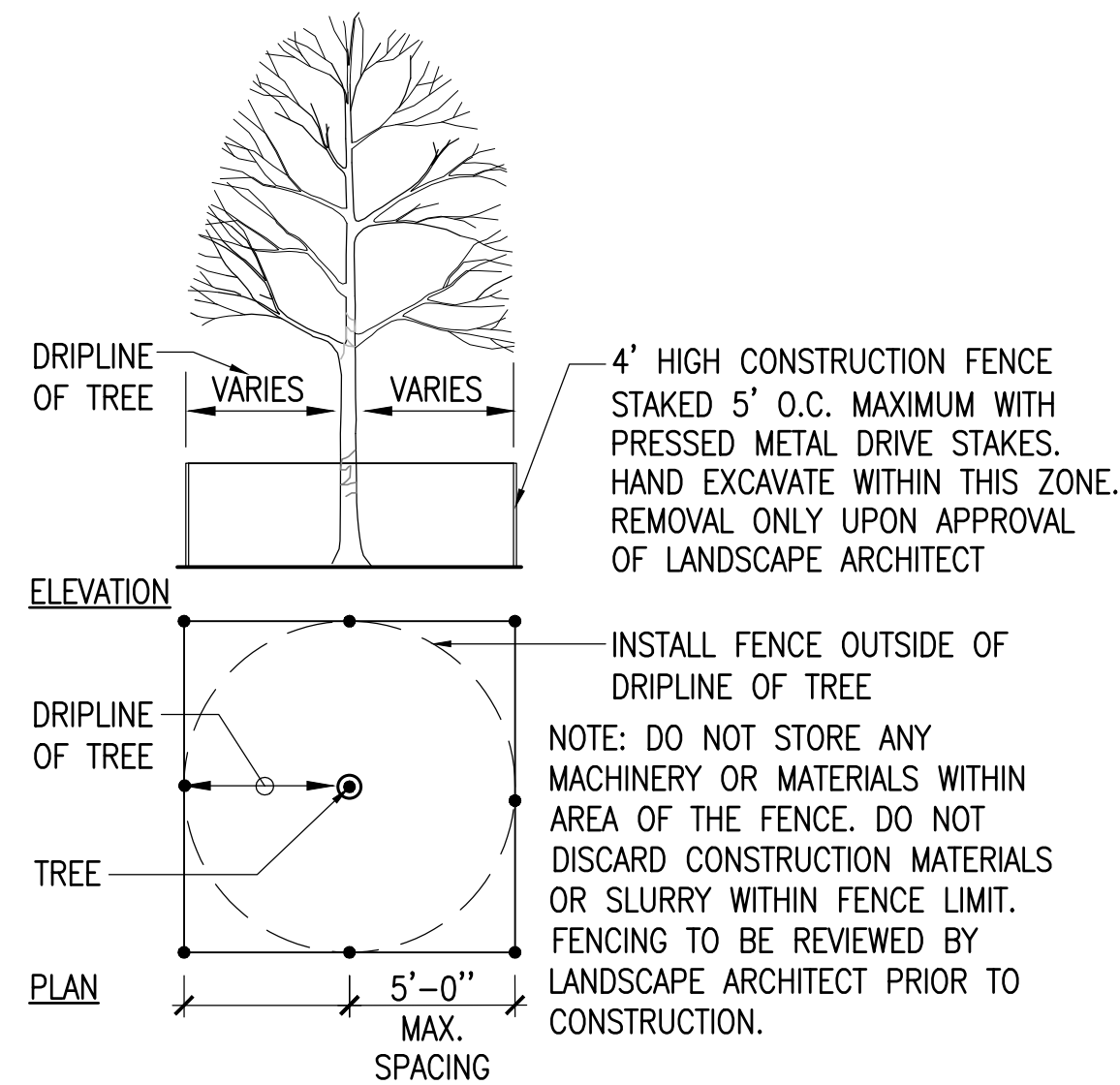
NOTES



SECTION ELEVATION

6 TREE PLANTING ON SLOPE

SCALE: N.T.S.



7 TREE PROTECTION - FENCE

SCALE: N.T.S.

1021-1025 MASSACHUSETTS AVENUE

ARLINGTON, MASSACHUSETTS

MAJ INVESTMENT, LLC

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DRAFT CONSTRUCTION DOCUMENT SET

Job Number:
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Drawn By: YL
Checked By: KZ
Date: SEPTEMBER 8, 2022
Scale: 1"=20'-0"

Drawing Title:

DETAILS

L6



1021-1025 Massachusetts Avenue

Comprehensive Permit Drawings – BZA Final Submission

All drawings dated April 14, 2023

Number	Title
A1.0	Basement Plan
A1.1	Ground Floor Plan
A1.2	Second Floor Plan
A1.3	Third Floor Plan
A1.4	Fourth Floor Plan
A1.5	Fifth Floor Plan
A1.6	Roof Plan
A2.1	Front & Rear Elevations
A2.2	Left and Right Elevations
A2.3	Cross Sections
A2.4	Longitudinal Section
A2.5	Street Context Elevation
A3.1	Street Level View
A3.2	Bird's Eye View

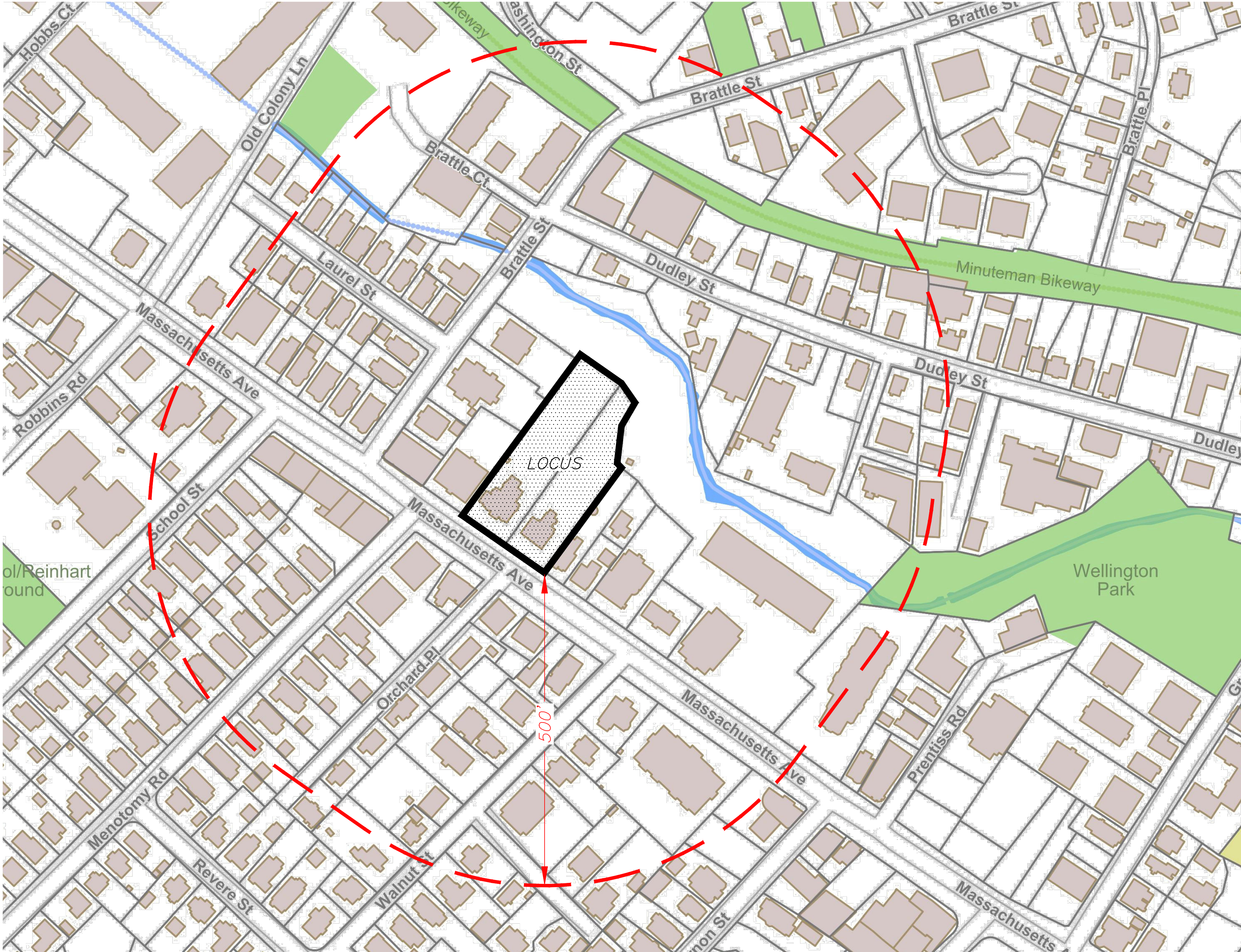
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NOTES:

1. THE INFORMATION DEPICTED ON THIS PLAN HAS BEEN COMPILED FROM THE TOWN OF ARLINGTON GIS SYSTEM

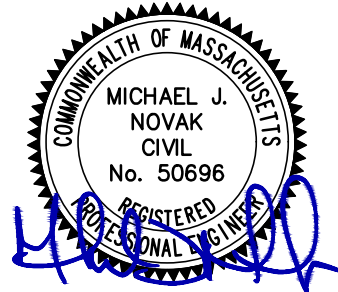
2. LAND USE WITHIN 500 FEET OF THE SUBJECT PROPERTY IS PRIMARILY SINGLE FAMILY DWELLINGS AND COMMERCIAL BUSINESSES, AND INCLUDES THE HIGHLAND FIRE STATION.

1021 & 1025 MASSACHUSETTS AVENUE
(1021 ASSESSORS MAP 55 LOT 19)
(1025 ASSESSORS MAP 55 LOT 20)
COMPREHENSIVE PERMIT PLAN SET
(TO ACCOMPANY A ZONING BOARD OF APPEALS APPLICATION)
LOCATED IN ARLINGTON, MA
SEPTEMBER 19, 2022 - REVISED APRIL 14, 2023



LOCUS CONTEXT MAP
(SCALE 1"=100')

PREPARED BY:
PATRIOT Engineering
35 BEDFORD STREET, SUITE 4
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com

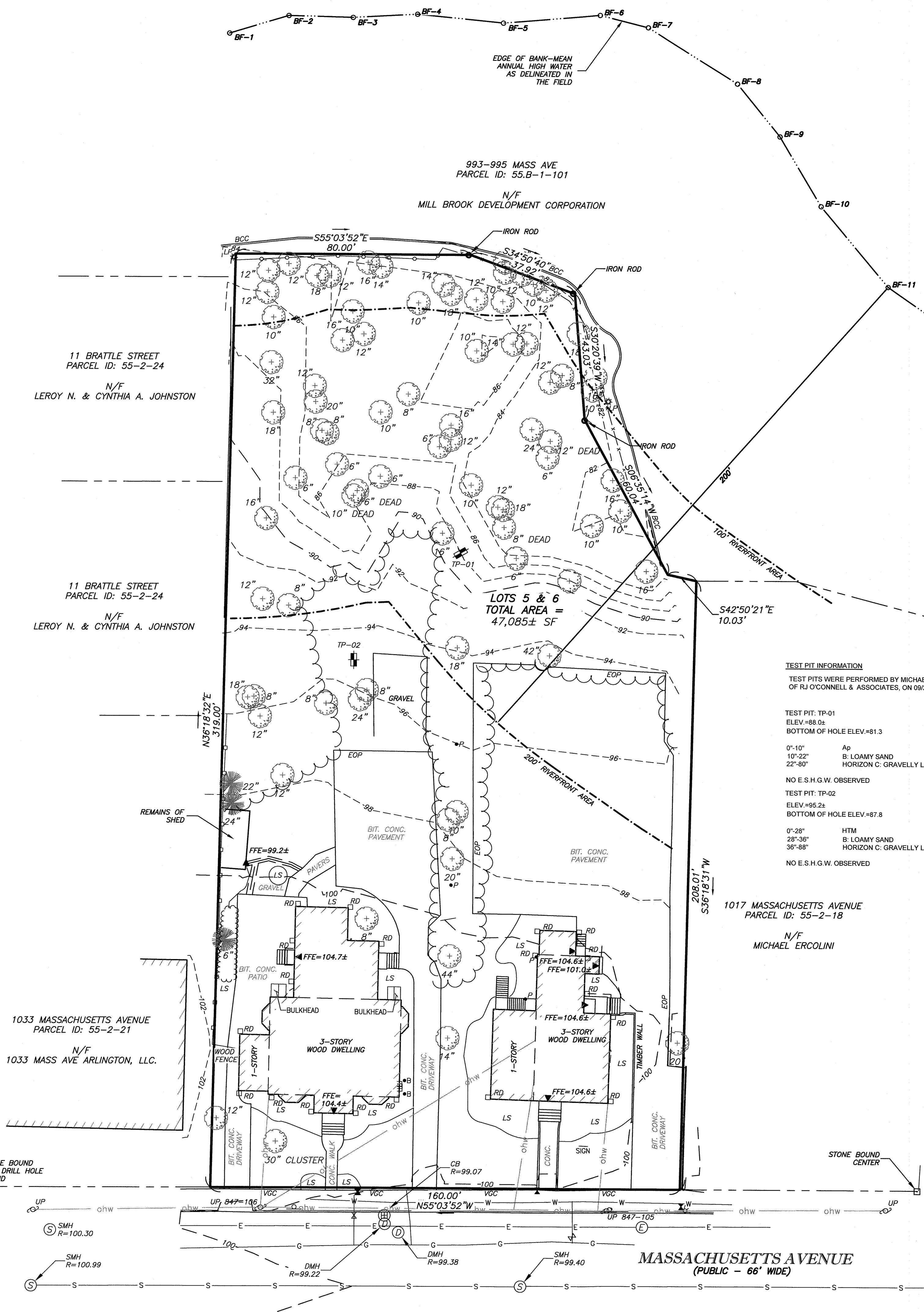


SHEET INDEX

1.	COVER SHEET
2.	EXISTING CONDITIONS PLAN
3.	SITE DEMOLITION PLAN
4.	SITE LAYOUT AND MATERIALS PLAN
5.	EROSION CONTROL/ CONSTRUCTION STORMWATER PLAN
6.	SITE GRADING AND DRAINAGE PLAN
7.	SITE UTILITY PLAN
8.	EMERGENCY ACCESS PLAN
9.	SITE DETAILS - I
10.	SITE DETAILS - II

APPLICANT:
1025 MASS AVE. LLC
13 WHEELING AVENUE
WOBURN, MA 01801

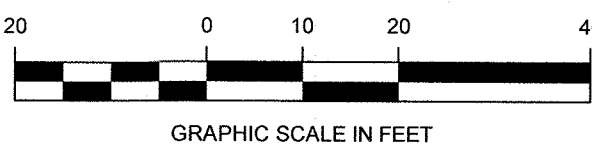
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LEGEND			
(NOT ALL FEATURES CONTAINED IN THIS LEGEND APPEAR ON THE PLAN)			
	BOUNDARY LINE		CONCRETE CURB
	ABUTTING PROPERTY LINE		VERTICAL GRANITE CURB
	SEWER SERVICE		BITUMINOUS CONCRETE CURB
	DRAIN SERVICE		HANDICAP
	WATER SERVICE		HIGH DENSITY POLYETHYLENE
	GAS LINE		CONCRETE
	ELECTRIC LINE		LANDSCAPE AREA
	TELEPHONE LINE		DOOR
	OVERHEAD WIRES		SIGN
	CHAIN LINK FENCE		PARKING COUNT / COMPACT NUMBER
	STOCKADE FENCE		DECIDUOUS TREE
	INDEX CONTOUR		CONIFEROUS TREE
	INTERMEDIATE CONTOUR		FROM RECORD PLANS
	UTILITY POLE		RETAINING WALL
	LIGHT POLE		DETECTABLE WARNING PAD
	ELECTRIC HAND HOLE		
	CABLE MANHOLE		
	SEWER MANHOLE		
	DRAIN MANHOLE		
	CATCH BASIN		
	WATER VALVE		
	FIRE HYDRANT		
	SPRINKLER CONNECTION		
	POST INDICATOR VALVE		
	BOLLARD		
	GAS METER		
	GAS VALVE		
	ROOF DRAIN		
	AREA DRAIN		
	IRRIGATION CONTROL VALVE		
	SPOT GRADE		
	TEST PIT		

- NOTES:
- THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING SITE CONDITIONS, AS THEY EXISTED AT THE TIME OF THE FIELD SURVEY, OF THE LOCUS PARCEL FOR DESIGN PURPOSES. THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING TOTAL STATION METHODS BY R. J. O'CONNELL & ASSOCIATES (RJOC).
 - UNDERGROUND UTILITIES SHOWN ARE FROM OBSERVED SURFACE INDICATIONS, SUBSURFACE INDICATIONS, AND COMPILED FROM AVAILABLE RECORD PLANS OF UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. AS OF THE DATE OF THIS SURVEY, NO INFORMATION REGARDING RECORD UTILITIES HAS BEEN PROVIDED BY ELECTRIC AND GAS PROVIDERS. BEFORE CONSTRUCTION CALL "DIG SAFE" 811.
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 - EDGE OF BANK-MEAN ANNUAL HIGH WATER LINE WAS DELINEATED BY LEC ENVIRONMENTAL CONSULTANTS, INC. ON OCTOBER 15, 2021 AND WAS LOCATED IN THE FIELD BY TOTAL STATION METHODS ON THE SAME DAY BY RJ O'CONNELL & ASSOCIATES.
 - CONTOUR INTERVAL IS TWO FOOT (2').

- PLAN REFERENCES:
- PLAN BOOK AND PAGES REFERENCE THE MIDDLESEX SOUTH COUNTY REGISTRY OF DEEDS
- PLAN BOOK 21 PAGE 6 (1864)
 - LAND COURT PLAN 31556a (1962)
 - PLAN 1006 OR 1967
 - LAND COURT PLAN 35170 (1970)
 - PLAN 1158 OF 1986
 - PLAN 586 OF 2015



RJOC

Record Owner:
1021 MASSACHUSETTS AVENUE
JOHN H. CHAGLIASSIAN
1021 ARLINGTON, MA 02476
BK 72517 / PG 224

1025 - 1027 MASSACHUSETTS AVENUE
STEPHEN B. GERSH
21 KING'S COURT
ESSEX, MA 01929
BK 57869 / PG 298

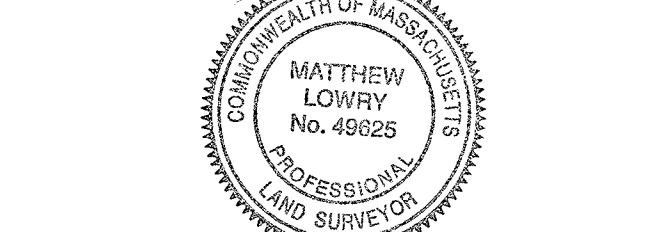
Location:
PARCEL ID:
1021 MASSACHUSETTS AVENUE
MAP 055 BLOCK 002 LOT 019
1025 - 1027 MASSACHUSETTS AVENUE
MAP 055 BLOCK 002 LOT 020
ARLINGTON, MA

PREPARED BY:
RJOC
O'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVENUE, SUITE 201 STONEHAM, MA 02180
PHONE: 781.279.0180 RJOC@CONNELL.COM

1025 MASS AVE LLC
13 WHEELING AVENUE
WOBBURN, MA 01801

PROJECT NAME:
1021 & 1025 MASSACHUSETTS AVE
ARLINGTON, MA

THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED BETWEEN 08/13/2021 AND 10/15/2021.

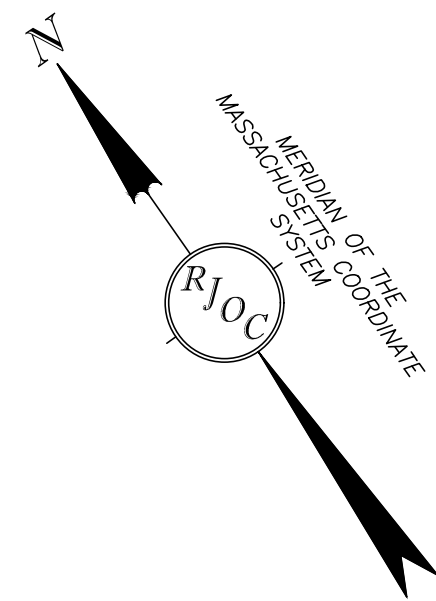


DATE: 9/15/2022
PROFESSIONAL LAND SURVEYOR FOR
RJ O'CONNELL & ASSOCIATES, INC.
DRAWN BY: RJK / VJH
REVIEWED BY: ML
SCALE: 1" = 20'
FIELD CREW: RJK / CJR
FIELD BOOK: FIELD BOOK 40 / PG 5
DATE: 12/09/2021
DRAWING NAME:

EXISTING
CONDITIONS PLAN

DRAWING NUMBER:
2 OF 7
PROJECT NUMBER:
21583

Copyright © 2021 by R.J. O'Connell & Associates, Inc.



NOTES:

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LEGEND

(NOT ALL FEATURES CONTAINED IN THIS LEGEND APPEAR ON THE PLAN)

BOUNDARY LINE	
---	ABUTTING PROPERTY LINE
---	SEWER SERVICE
---	DRAIN SERVICE
---	WATER SERVICE
---	GAS LINE
---	ELECTRIC LINE
---	TELEPHONE LINE
---	OVERHEAD WIRES
---	CHAIN LINK FENCE
---	STOCKADE FENCE
UTILITY POLE	CC CONCRETE CURB
LIGHT POLE	VGC VERTICAL GRANITE CURB
ELECTRIC HAND HOLE	BCB BITUMINOUS CONCRETE CURB
CABLE MANHOLE	ADA AMERICANS WITH DISABILITIES ACCESSIBLE
SEWER MANHOLE	HPDE HIGH DENSITY POLYETHYLENE
DRAIN MANHOLE	CONC. CONCRETE
CATCH BASIN	LSA LANDSCAPE AREA
WATER VALVE	DOOR
FIRE HYDRANT	SIGN
SPRINKLER CONNECTION	PARKING COUNT / COMPACT NUMBER
POST INDICATOR VALVE	DECIDUOUS TREE
BOLLARD	CONIFEROUS TREE
GAS METER	FROM RECORD PLANS
GAS VALVE	RETAINING WALL
ROOF DRAIN	DETECTABLE WARNING PAD
AREA DRAIN	
IRRIGATION CONTROL VALVE	
SPOT GRADE	
TEST PIT	
PTBR	PROPOSED TO BE REMOVED
PROPOSED FILTERMITT	
EXISTING TREE PROPOSED TO BE REMOVED	

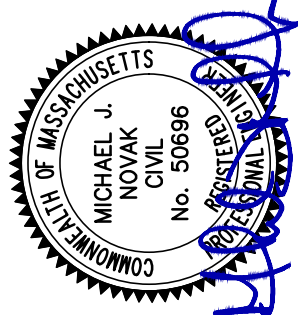
FOR EROSION CONTROL
MEASURES SEE SHEET 5

79 EXISTING TREES TO BE REMOVED

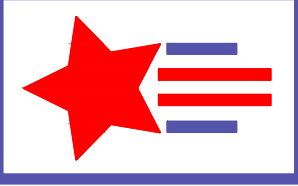
PERMITTING SET

1021 & 1025 MASSACHUSETTS AVENUE
ARLINGTON, MASSACHUSETTS

REVISIONS	
DATE	DESCRIPTION
01-23-2023	BY JBI PEER REVIEW COMMENTS
04-14-2023	BY JBI ZBA AND CONSERVATION COMMENTS

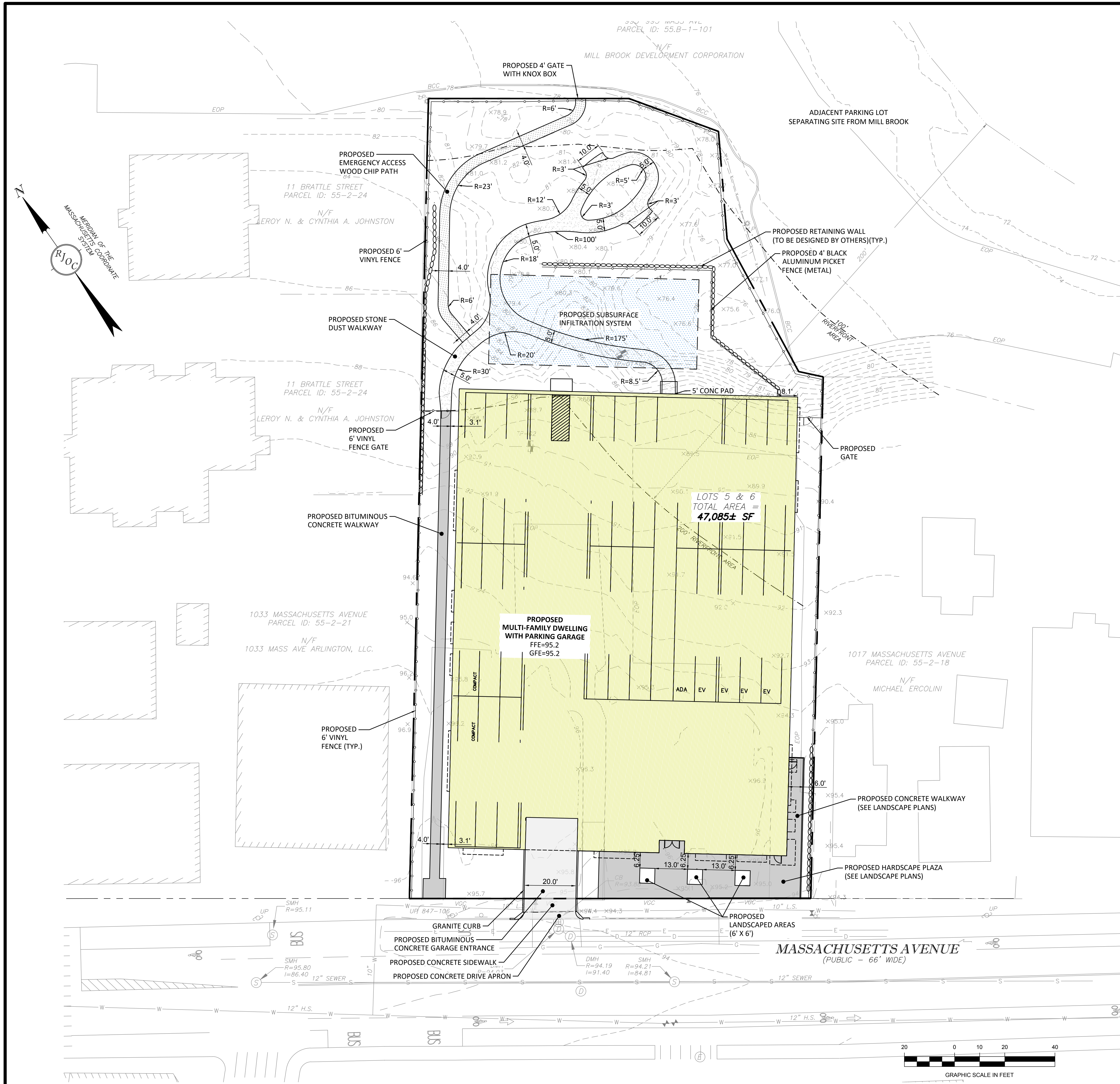


PATRIOT Engineering
35 BEDFORD STREET, SUITE 4
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com



SITE DEMOLITION PLAN
LOCATED IN
ARLINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
1025 MASS AVE., LLC

SHEET
3 OF 10



- NOTES:
- 1. UNDERGROUND UTILITIES SHOWN ARE FROM OBSERVED SURFACE INDICATIONS, SUBSURFACE INDICATIONS, AND COMPILED FROM AVAILABLE RECORD PLANS OF UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. AS OF THE DATE OF THIS SURVEY, NO INFORMATION REGARDING RECORD UTILITIES HAS BEEN PROVIDED BY ELECTRIC AND GAS PROVIDERS. BEFORE CONSTRUCTION CALL "DIG SAFE" 811.
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 - 6. ALL EXISTING UTILITIES ARE REQUIRED TO BE CUT AND CAPPED AT THE EXISTING MAIN CONNECTIONS.

LEGEND
(NOT ALL FEATURES CONTAINED IN THIS LEGEND APPEAR ON THE PLAN)

	BOUNDARY LINE		CONCRETE CURB
	ABUTTING PROPERTY LINE		VERTICAL GRANITE CURB
	SEWER SERVICE		BITUMINOUS CONCRETE CURB
	DRAIN SERVICE		AMERICANS WITH DISABILITIES ACCESSIBLE
	WATER SERVICE		HIGH DENSITY POLYETHYLENE
	GAS LINE		CONCRETE
	ELECTRIC LINE		LANDSCAPE AREA
	TELEPHONE LINE		DOOR
	OVERHEAD WIRES		SIGN
	CHAIN LINK FENCE		PARKING COUNT / COMPACT NUMBER
	STOCKADE FENCE		DECIDUOUS TREE
	INDEX CONTOUR		CONIFEROUS TREE
	INTERMEDIATE CONTOUR		FROM RECORD PLANS
	UTILITY POLE		RETAINING WALL
	LIGHT POLE		DETECTABLE WARNING PAD
	ELECTRIC HAND HOLE		PROPOSED SPOT GRADE
	CABLE MANHOLE		PROPOSED CONTOUR
	SEWER MANHOLE		PROPOSED RETAINING WALL
	DRAIN MANHOLE		TREE PROPOSED TO BE REMOVED
	CATCH BASIN		LIMIT OF RIVERFRONT AREA
	WATER VALVE		PROPOSED SEWER SERVICE
	FIRE HYDRANT		PROPOSED WATER SERVICE
	SPRINKLER CONNECTION		PROPOSED DRAIN LINE
	POST INDICATOR VALVE		
	BOLLARD		
	GAS METER		
	GAS VALVE		
	ROOF DRAIN		
	AREA DRAIN		
	IRRIGATION CONTROL VALVE		
	SPOT GRADE		
	TEST PIT		
	PROPOSED SUBSURFACE INFILTRATION SYSTEM		
	PROPOSED FILTERMITT		
	TYPICAL		
	PROPOSED FLARED END		
	INVERT		

FOR EROSION CONTROL MEASURES AND LIMIT OF WORK SEE SHEET 5

FOR ADDITIONAL HARDSCAPE INFORMATION SEE LANDSCAPE DESIGN PLANS

1021 & 1025 MASSACHUSETTS AVENUE
ARLINGTON, MASSACHUSETTS

DATE: 09-19-2022
PROJECT NO: 21-32

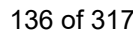
REVISIONS	DESCRIPTION
DATE	BY
01-23-2023	JB1
02-22-2023	JB1
04-14-2023	JB1

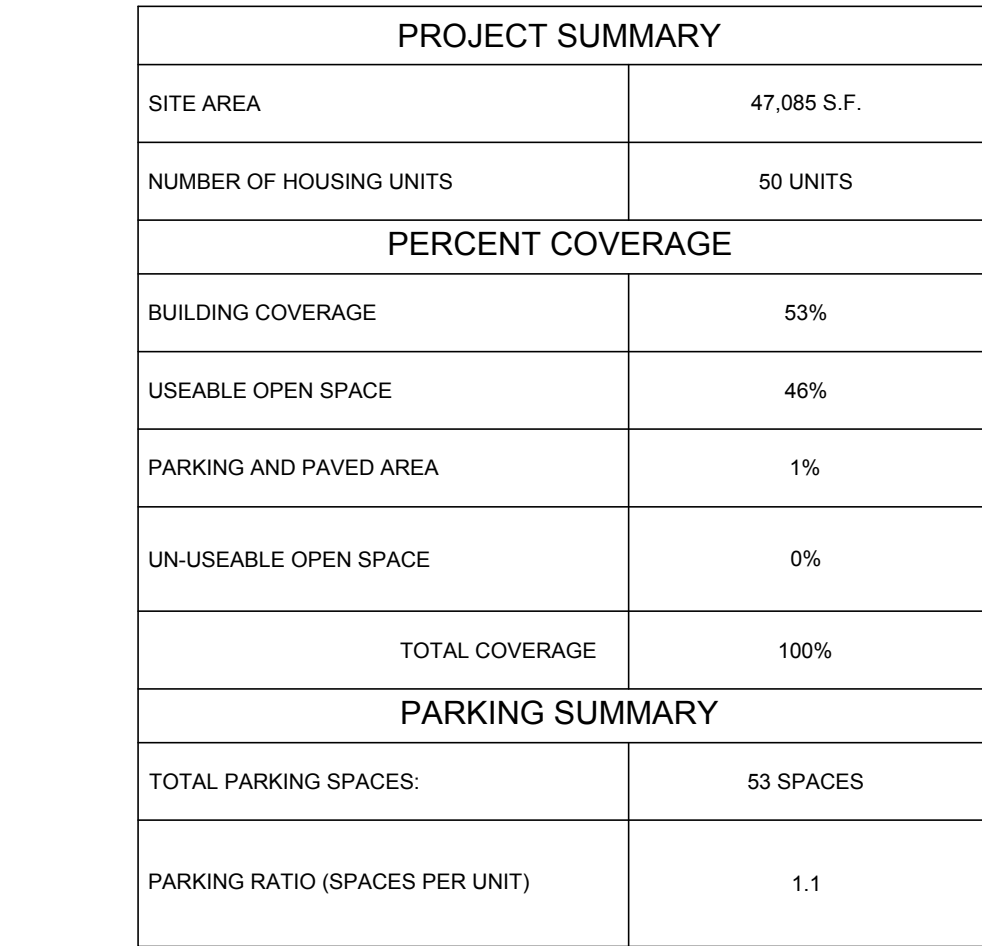
PATRIOT Engineering
35 BEDFORD STREET, SUITE 4
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com

LAYOUT AND MATERIALS PLAN
LOCATED IN
ARLINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
1025 MASS AVE., LLC

SHEET
4 OF 10

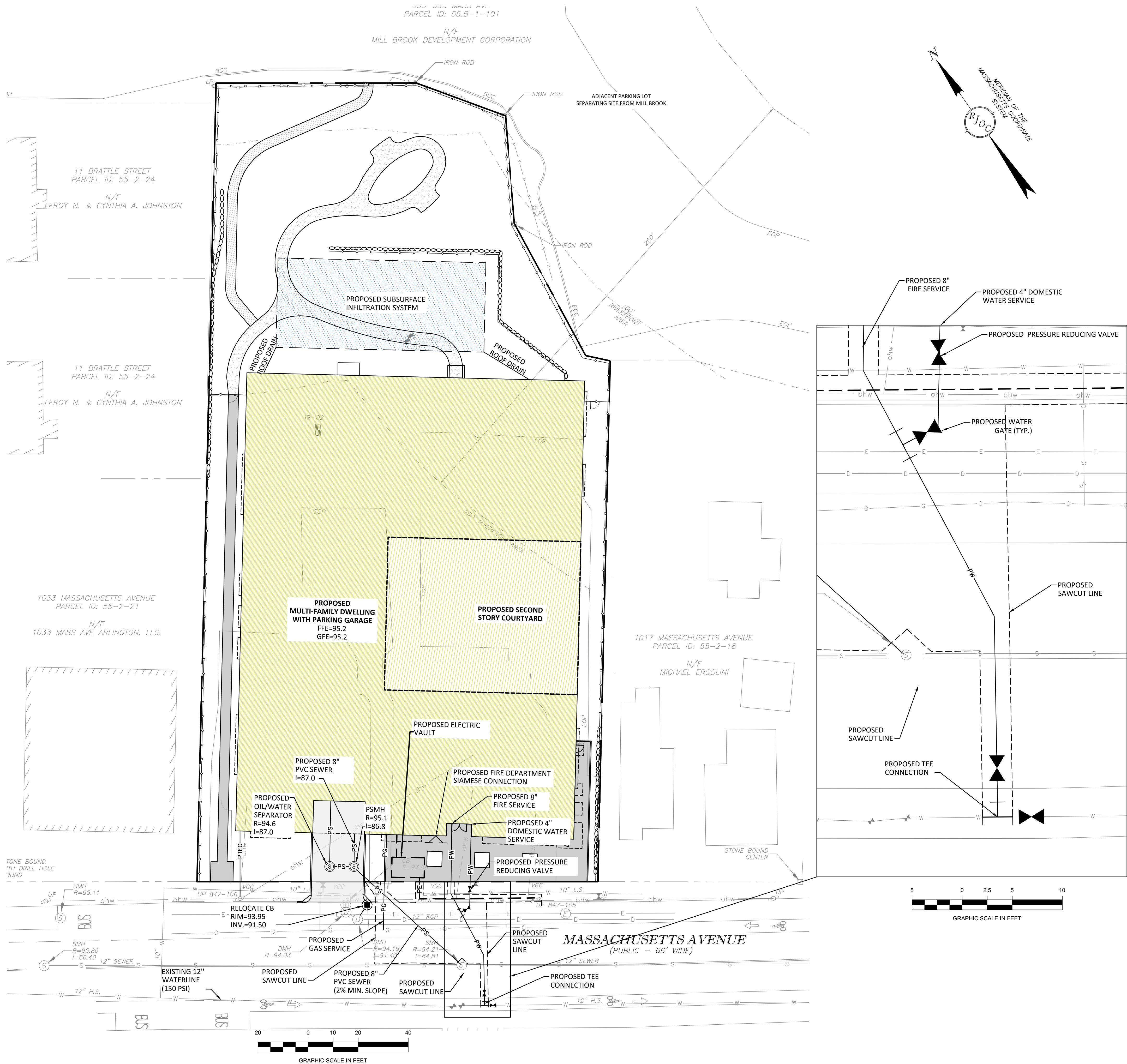
PERMITTING SET





PERMITTING SET

137 of 317



- NOTES:**
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 - CONTOUR INTERVAL IS TWO FOOT (2').
 - ALL EXISTING UTILITIES ARE REQUIRED TO BE CUT AND CAPPED AT THE EXISTING MAIN CONNECTIONS.

- UTILITY NOTES:**
- ALL EXISTING UTILITIES ARE REQUIRED TO BE CUT AND CAPPED AT THE EXISTING MAIN CONNECTIONS.
 - ALL PROPOSED WATER AND SEWER PIPING SHALL BE SEPARATED BY 10 FEET HORIZONTALLY AND/OR 18 INCHES VERTICALLY (WATER OVER SEWER).
 - PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS (BOTH VERTICALLY OR HORIZONTALLY) TO CONFIRM ALL PROPOSED UTILITY CONNECTIONS WILL MEET ALL TOWN REQUIREMENTS AND FUNCTION AS DESIGNED.

LEGEND
(NOT ALL FEATURES CONTAINED IN THIS LEGEND APPEAR ON THE PLAN)

--- S --- S ---	BOUNDARY LINE
--- D --- D ---	ABUTTING PROPERTY LINE
--- W --- W ---	SEWER SERVICE
--- G --- G ---	DRAIN SERVICE
--- E --- E ---	WATER SERVICE
--- T --- T ---	GAS LINE
ohw ohw	ELECTRIC LINE
X X X X	TELEPHONE LINE
---	OVERHEAD WIRES
---	CHAIN LINK FENCE
---	STOCKADE FENCE
---	INDEX CONTOUR
---	INTERMEDIATE CONTOUR
CC	CONCRETE CURB
VGC	VERTICAL GRANITE CURB
BCB	BITUMINOUS CONCRETE CURB
HC	HANDICAP
HPDE	HIGH DENSITY POLYETHYLENE
CONC.	CONCRETE
LSA	LANDSCAPE AREA
---	DOOR
---	SIGN
(REC)	FROM RECORD PLANS
---	RETAINING WALL
---	DETECTABLE WARNING PAD
---	PROPOSED RETAINING WALL
PTEC	PROPOSED TELEPHONE/ELECTRIC/CABLE
---	LIMIT OF RIVERFRONT AREA
PS	PROPOSED SEWER SERVICE
PW	PROPOSED WATER SERVICE
PD	PROPOSED DRAIN LINE
---	PROPOSED WATER GATE
PG	PROPOSED GAS LINE
PE	PROPOSED ELECTRIC LINE
---	PROPOSED SEWER MANHOLE (PSMH)

UTILITY POLE
LIGHT POLE
ELECTRIC HAND HOLE
CABLE MANHOLE
SEWER MANHOLE
DRAIN MANHOLE
CATCH BASIN
WATER VALVE
FIRE HYDRANT
SPRINKLER CONNECTION
POST INDICATOR VALVE
BOLLARD
GAS METER
GAS VALVE
ROOF DRAIN
AREA DRAIN
IRRIGATION CONTROL VALVE
SPOT GRADE
TEST PIT
PSIS
PROPOSED SUBSURFACE INFILTRATION SYSTEM
PROPOSED FILTERMITT
TYP
PFE
INV.

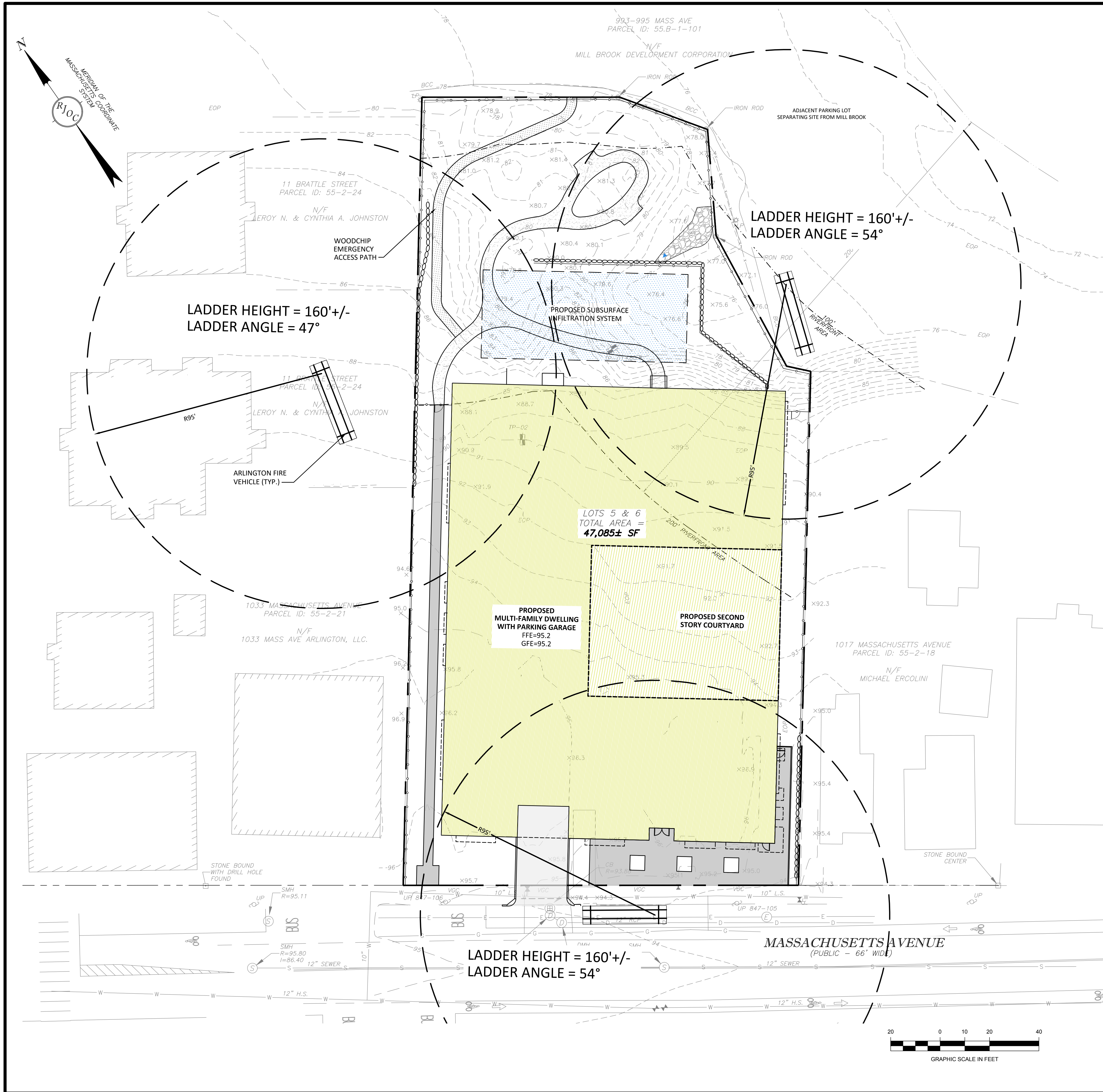
PROPOSED 8" FIRE SERVICE
PROPOSED 4" DOMESTIC WATER SERVICE
PROPOSED PRESSURE REDUCING VALVE
PROPOSED WATER GATE (TYP.)
PROPOSED SAWCUT LINE
PROPOSED TEE CONNECTION

SEWER INFORMATION:

- TOTAL FLOW FROM PROPOSED BUILDING:
97 BEDS X 110 GPD/BED X 1.15 = 12,670 GPD
12,670 GPD = 0.02 CFS
- SEWER SERVICE CAPACITY (HALF FULL):
6" PVC PIPE @ 2% = 0.46 CFS
- SEWER MAIN CAPACITY (HALF FULL):
12" PVC PIPE @ 0.95% = 2.06 CFS

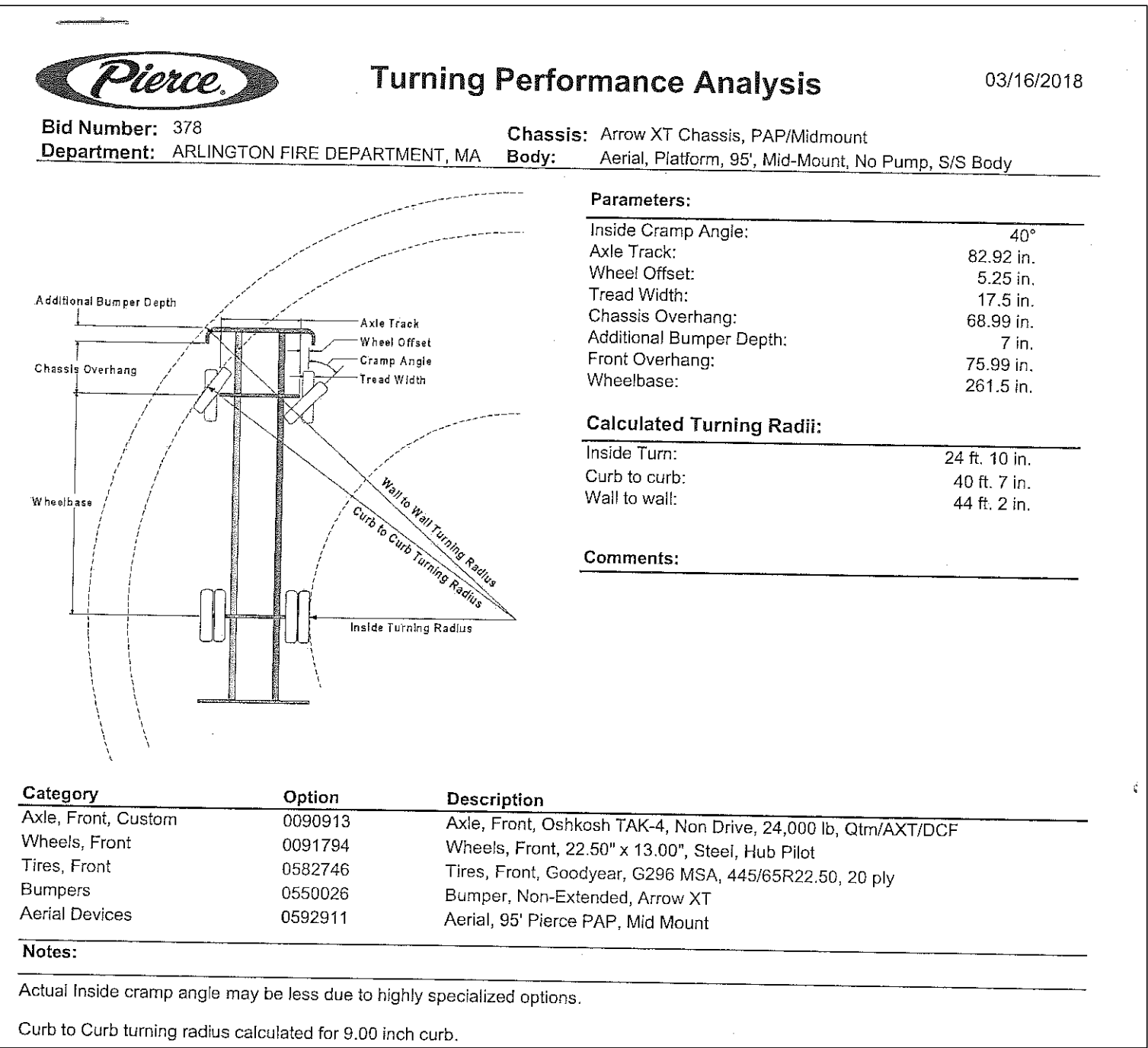
1021 & 1025 MASSACHUSETTS AVENUE ARLINGTON, MASSACHUSETTS	DATE: 09-19-2022	PROJECT No: 21-32
	DRAWN BY: JBI	CHECKED BY: JBI
REVISIONS	DESCRIPTION	
01/23/23	BY JBI	PEER REVIEW COMMENTS
02/22/23	BY JBI	UPDATED BUILDING
03/14/23	BY JBI	ADDRESS COMMENTS / SAW CUT
04-14-2023	BY JBI	ZBA AND CONSERVATION COMMENTS
PATRIOT Engineering 35 BEDFORD STREET, SUITE 4 LEXINGTON, MASSACHUSETTS 02420 T: (978) 726-2654 www.patriot-eng.com		
SITE UTILITY PLAN LOCATED IN ARLINGTON, MA (MIDDLESEX COUNTY) PREPARED FOR 1025 MASS AVE., LLC	SHEET 7 OF 10	

PERMITTING SET



- NOTES:**
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LEGEND	
(NOT ALL FEATURES CONTAINED IN THIS LEGEND APPEAR ON THE PLAN)	
	BOUNDARY LINE
	ABUTTING PROPERTY LINE
	SEWER SERVICE
	DRAIN SERVICE
	WATER SERVICE
	GAS LINE
	ELECTRIC LINE
	TELEPHONE LINE
	OVERHEAD WIRES
	CHAIN LINK FENCE
	STOCKADE FENCE
	INDEX CONTOUR
	INTERMEDIATE CONTOUR
	UTILITY POLE
	LIGHT POLE
	ELECTRIC HAND HOLE
	CABLE MANHOLE
	SEWER MANHOLE
	DRAIN MANHOLE
	CATCH BASIN
	WATER VALVE
	FIRE HYDRANT
	SPRINKLER CONNECTION
	POST INDICATOR VALVE
	BOLLARD
	GAS METER
	GAS VALVE
	ROOF DRAIN
	AREA DRAIN
	IRRIGATION CONTROL VALVE
	SPOT GRADE
	TEST PIT
	PROPOSED SUBSURFACE INFILTRATION SYSTEM
	PROPOSED FILTERMITT
	TYPICAL
	PROPOSED FLARED END
	INVERT
	CONCRETE CURB
	VERTICAL GRANITE CURB
	BITUMINOUS CONCRETE CURB
	HANDICAP
	HIGH DENSITY POLYETHYLENE
	CONCRETE
	LANDSCAPE AREA
	DOOR
	SIGN
	PARKING COUNT / COMPACT NUMBER
	DECIDUOUS TREE
	CONIFEROUS TREE
	FROM RECORD PLANS
	RETAINING WALL
	DETECTABLE WARNING PAD
	PROPOSED SPOT GRADE
	PROPOSED CONTOUR
	PROPOSED RETAINING WALL
	TREE PROPOSED TO BE REMOVED
	LIMIT OF RIVERFRONT AREA
	PROPOSED SEWER SERVICE
	PROPOSED WATER SERVICE
	PROPOSED DRAIN LINE



1021 & 1025 MASSACHUSETTS AVENUE
ARLINGTON, MASSACHUSETTS

DATE: 09-19-2022
PROJECT NO: 21-32

REVISIONS

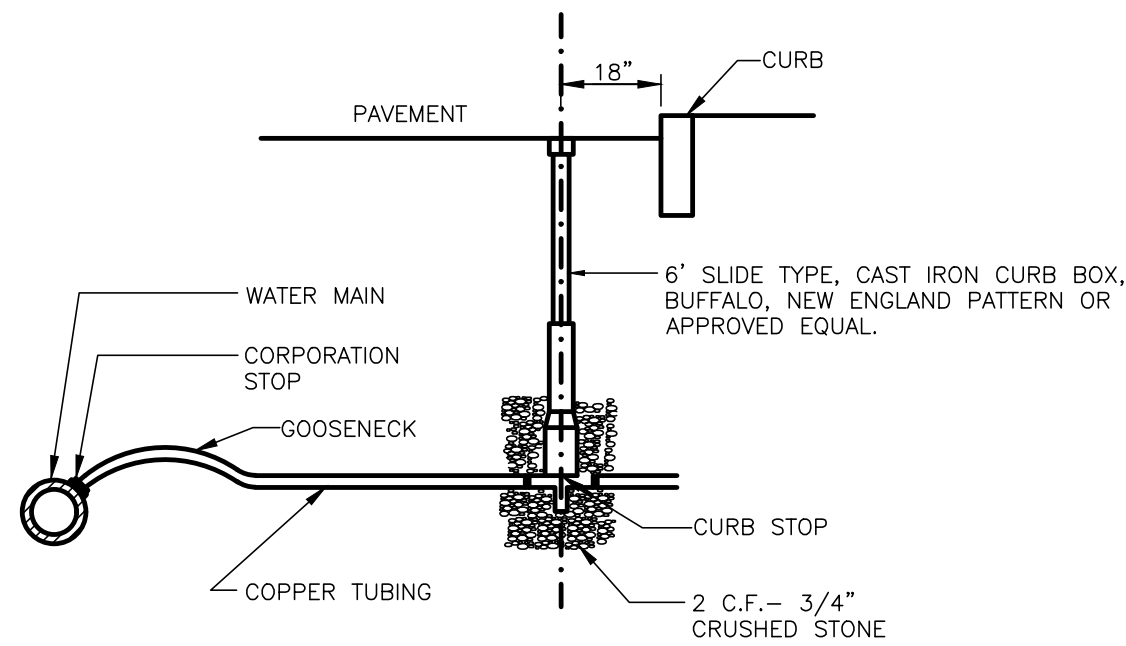
DATE	BY	REVIEW COMMENTS
01-23-2023	JB1	PEER REVIEW COMMENTS
02-22-2023	JB1	UPDATED BUILDING
04-14-2023	JB1	ZBA AND CONSERVATION COMMENTS

PATRIOT Engineering
35 BEDFORD STREET, SUITE 4
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com

EMERGENCY ACCESS PLAN
LOCATED IN
ARLINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
1025 MASS AVE., LLC

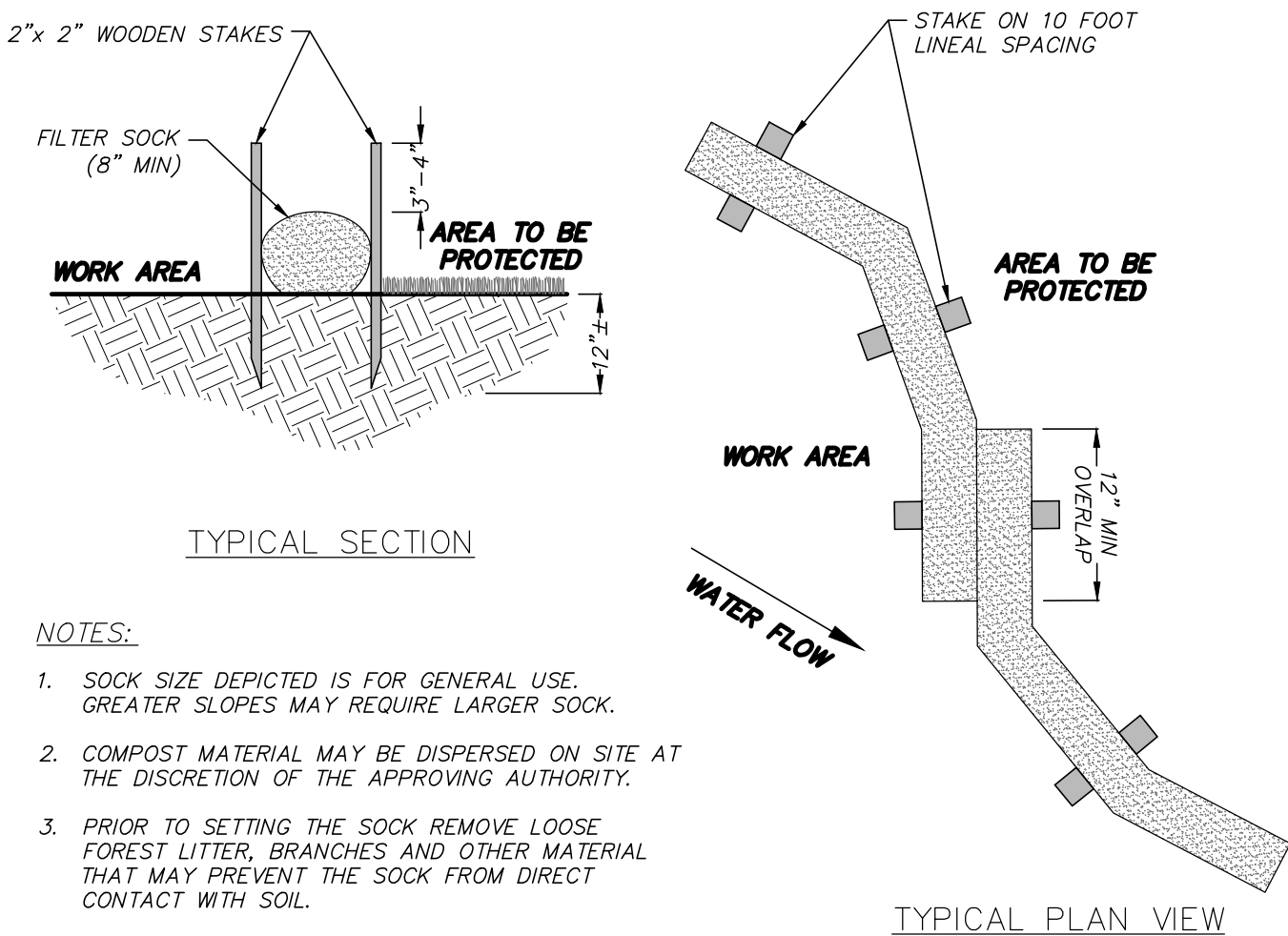
SHEET
8 OF 10

PERMITTING SET



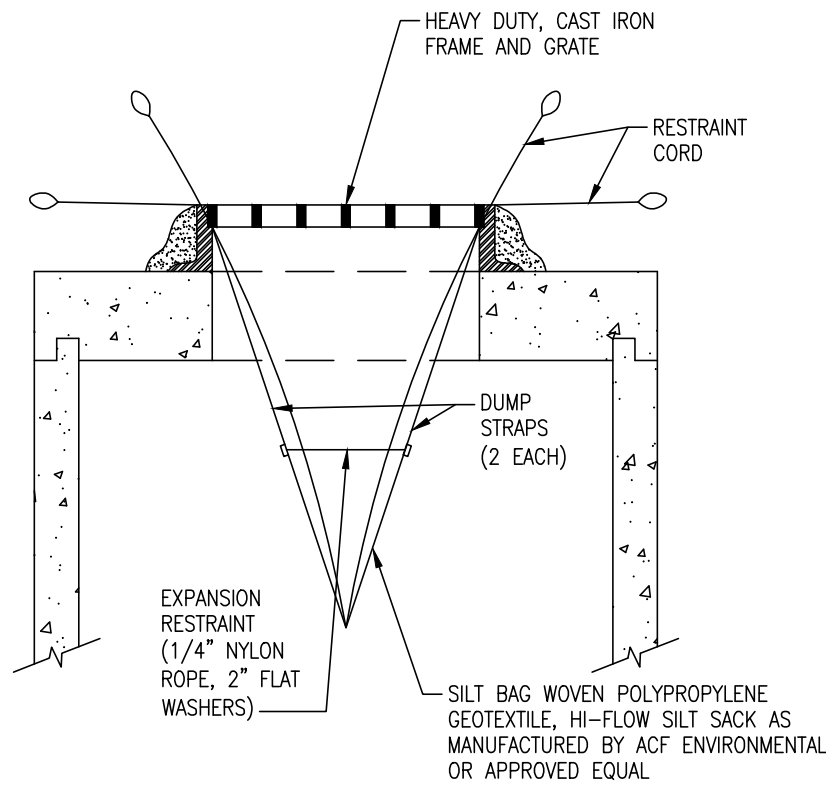
NOTE:
1. INSTALLATION AND MATERIALS TO BE IN ACCORDANCE WITH TOWN OF NORTH ATTLEBOROUGH'S SPECIFICATIONS.
2. WATER SERVICES LARGER THAN 1" ARE TO BE RESTRAINED TO MAIN W/ APPROVED SADDLE.

TYPICAL WATER SERVICE CONNECTION DETAIL
SCALE: N.T.S.



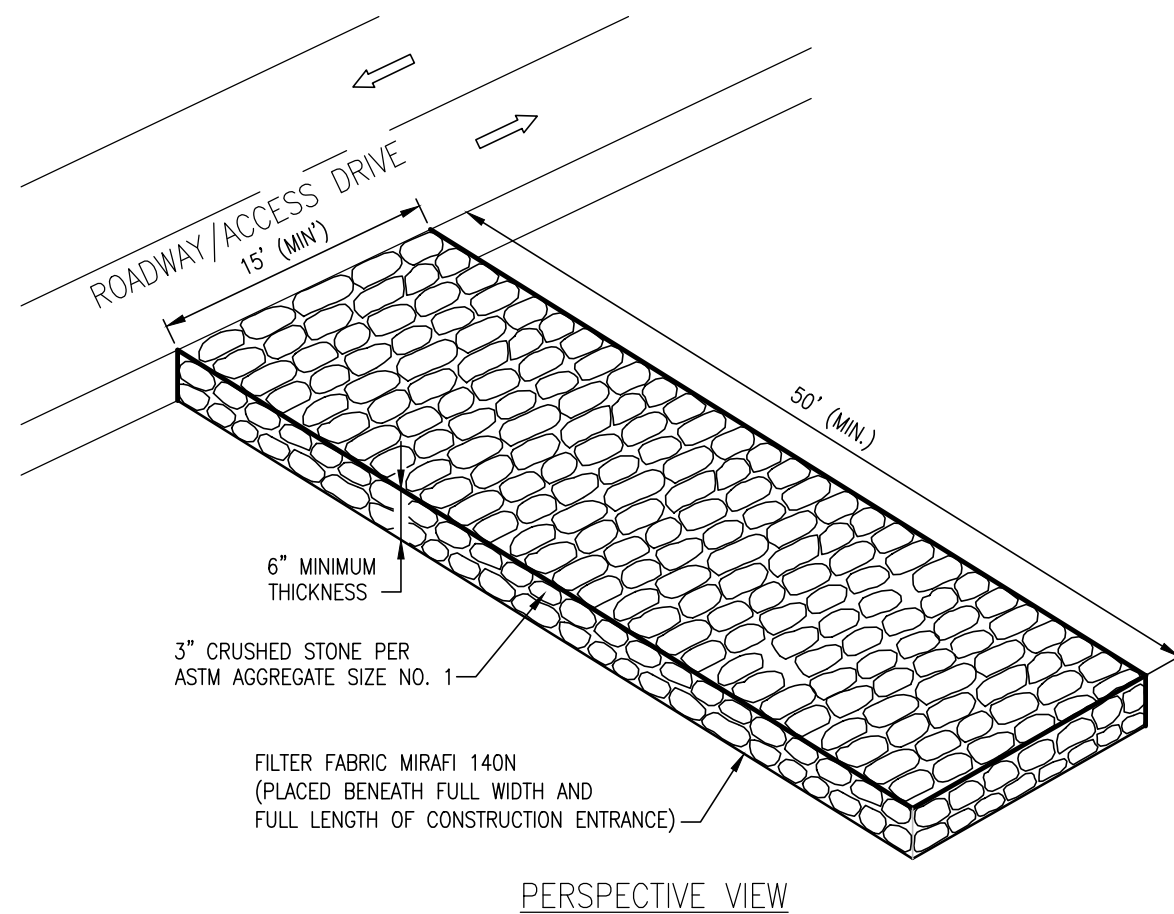
NOTES:
1. SOCK SIZE DEPICTED IS FOR GENERAL USE. GREATER SLOPES MAY REQUIRE LARGER SOCK.
2. COMPOST MATERIAL MAY BE DISPERSED ON SITE AT THE DISCRETION OF THE APPROVING AUTHORITY.
3. PRIOR TO SETTING THE SOCK REMOVE LOOSE FOREST LITTER, BRANCHES AND OTHER MATERIAL THAT MAY PREVENT THE SOCK FROM DIRECT CONTACT WITH SOIL.

COMPOST FILTER SOCK
SCALE: N.T.S.



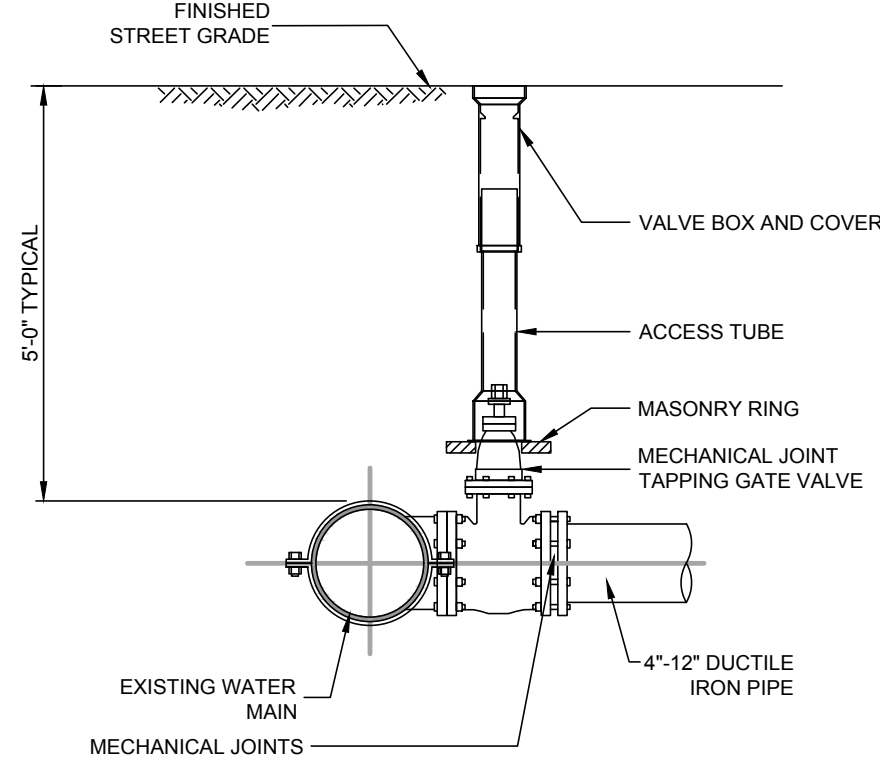
NOTES:
1. INSTALL SILT BAG IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. WHEN EXPANSION RESTRAINT CORD IS NO LONGER VISIBLE, THE SILT BAG IS FULL AND SHOULD BE EMPTIED OR REPLACED.
3. REMOVE SILT BAG PER MANUFACTURER'S INSTRUCTIONS.

TYPICAL FILTER BAG DETAIL
SCALE: N.T.S.

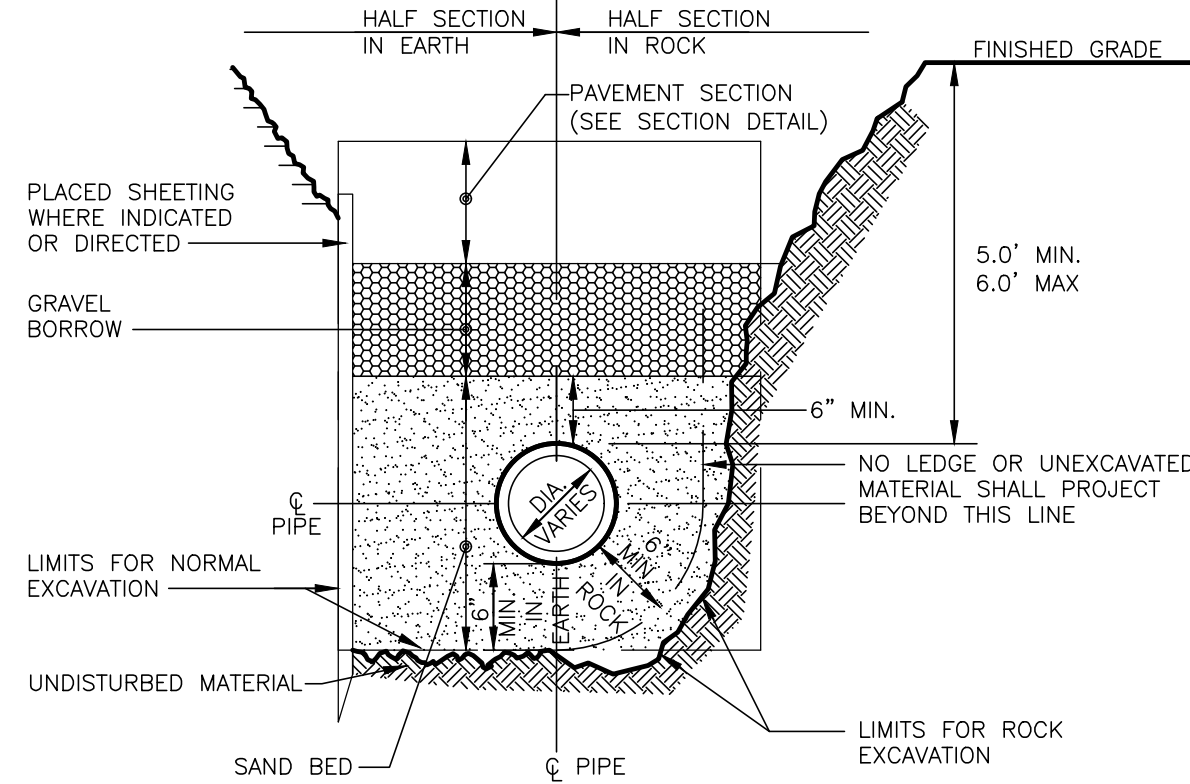


NOTES:
1. ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT PREVENTS TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY.
2. WHEN THE ENTRANCE PAD BECOMES INEFFECTIVE, THE STONE SHALL BE REMOVED WITH THE COLLECTED SOIL MATERIAL, REGRADED, STABILIZED AND THE CONSTRUCTION ENTRANCE RECONSTRUCTED.

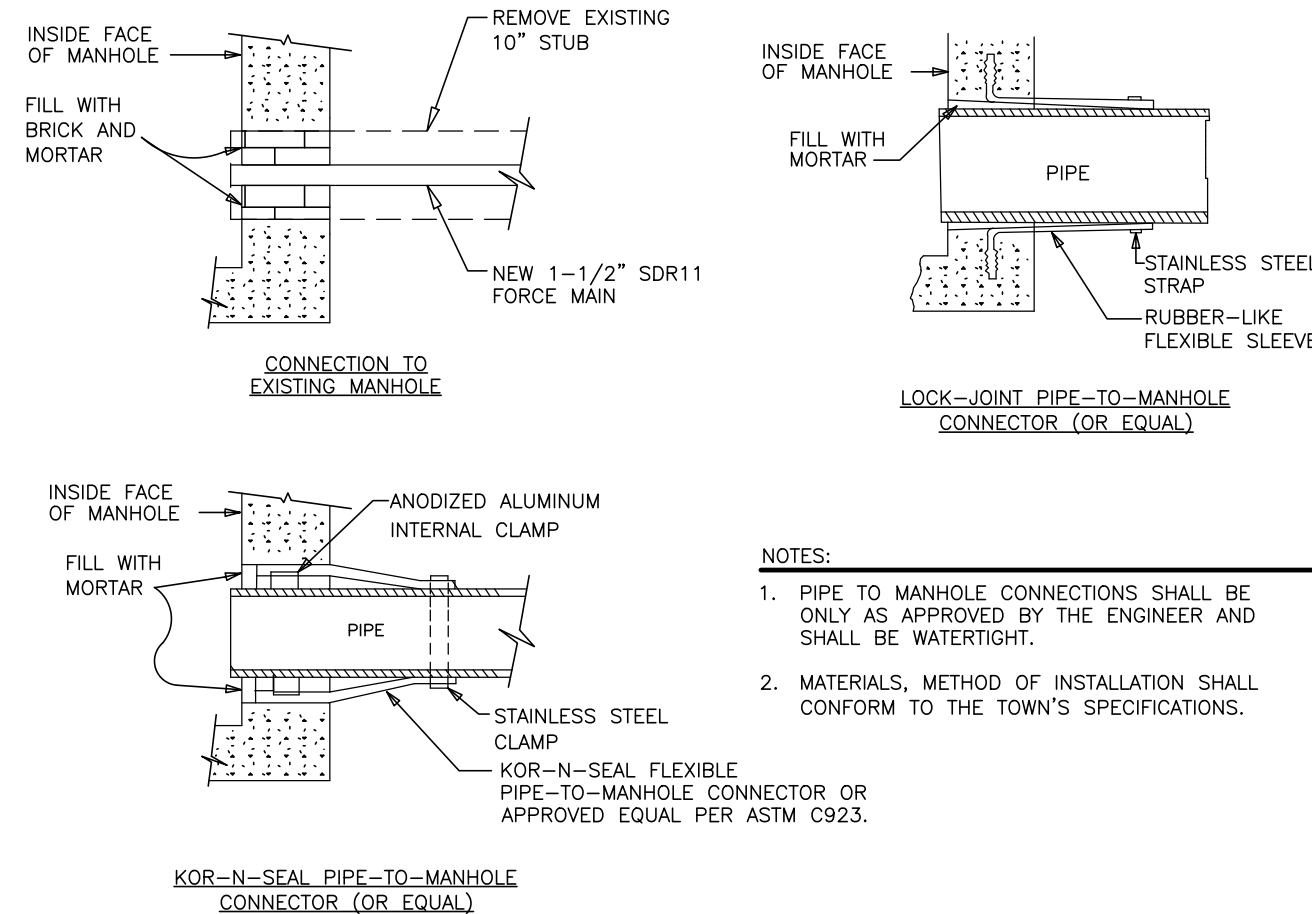
VEHICLE TRACKING PAD DETAIL
SCALE: N.T.S.



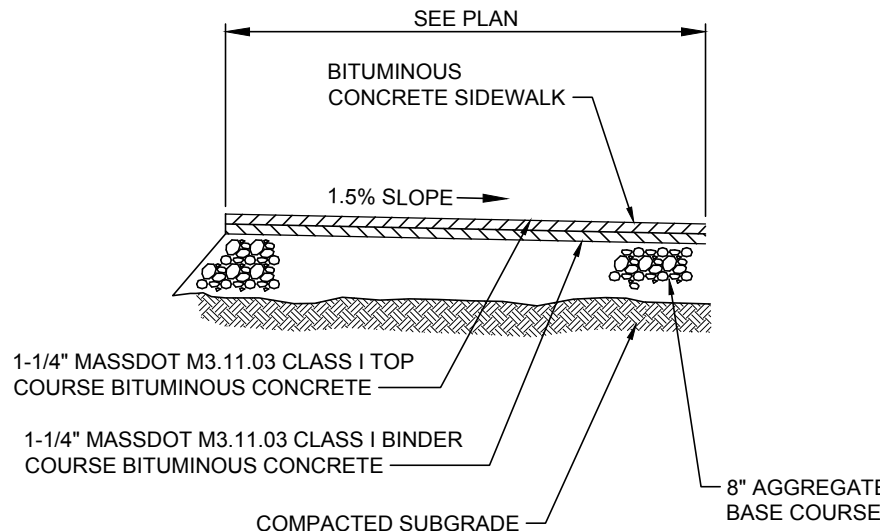
TYPICAL GATE VALVE DETAIL
SCALE: N.T.S.



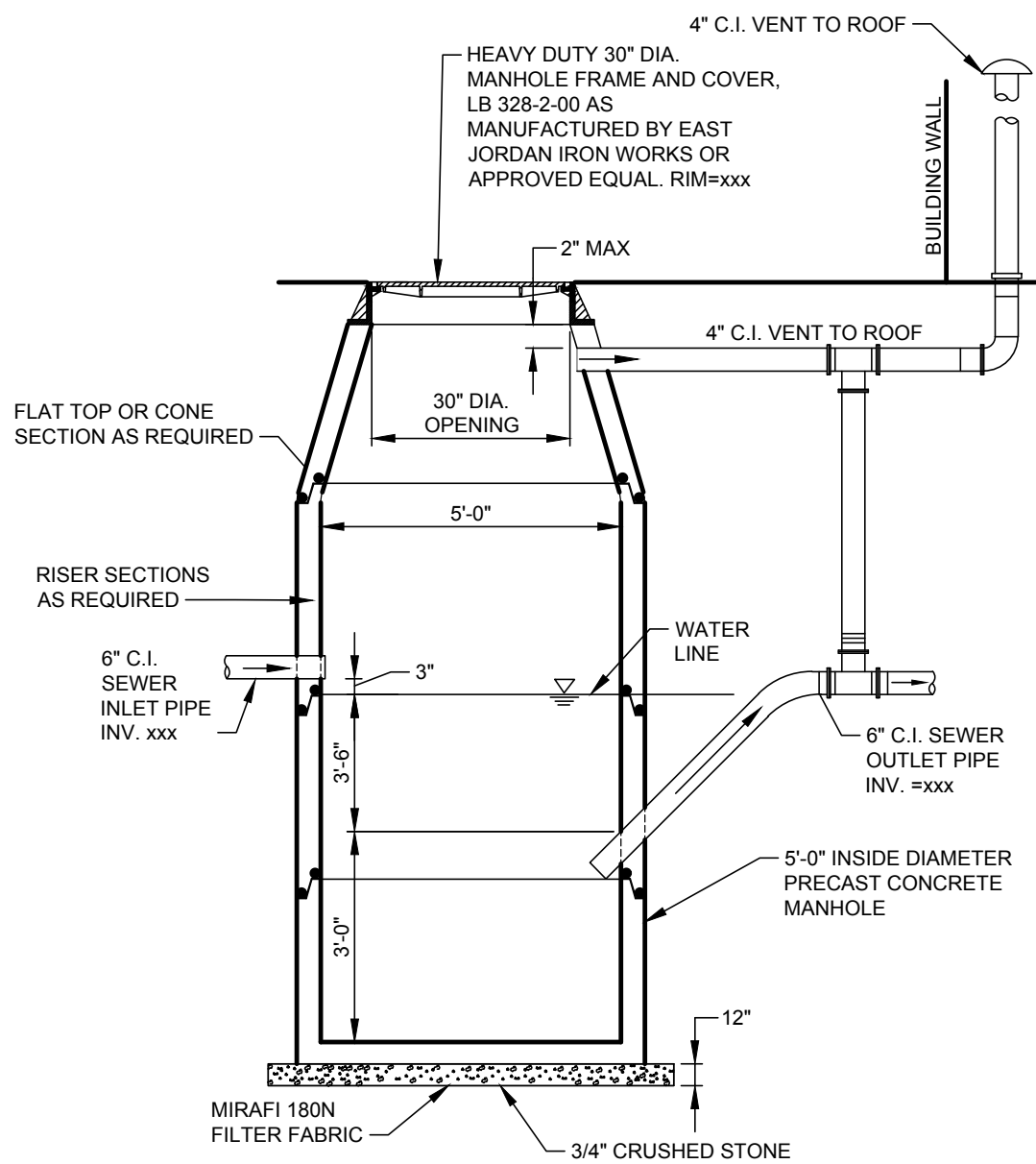
TYPICAL WATER TRENCH DETAIL
SCALE: N.T.S.



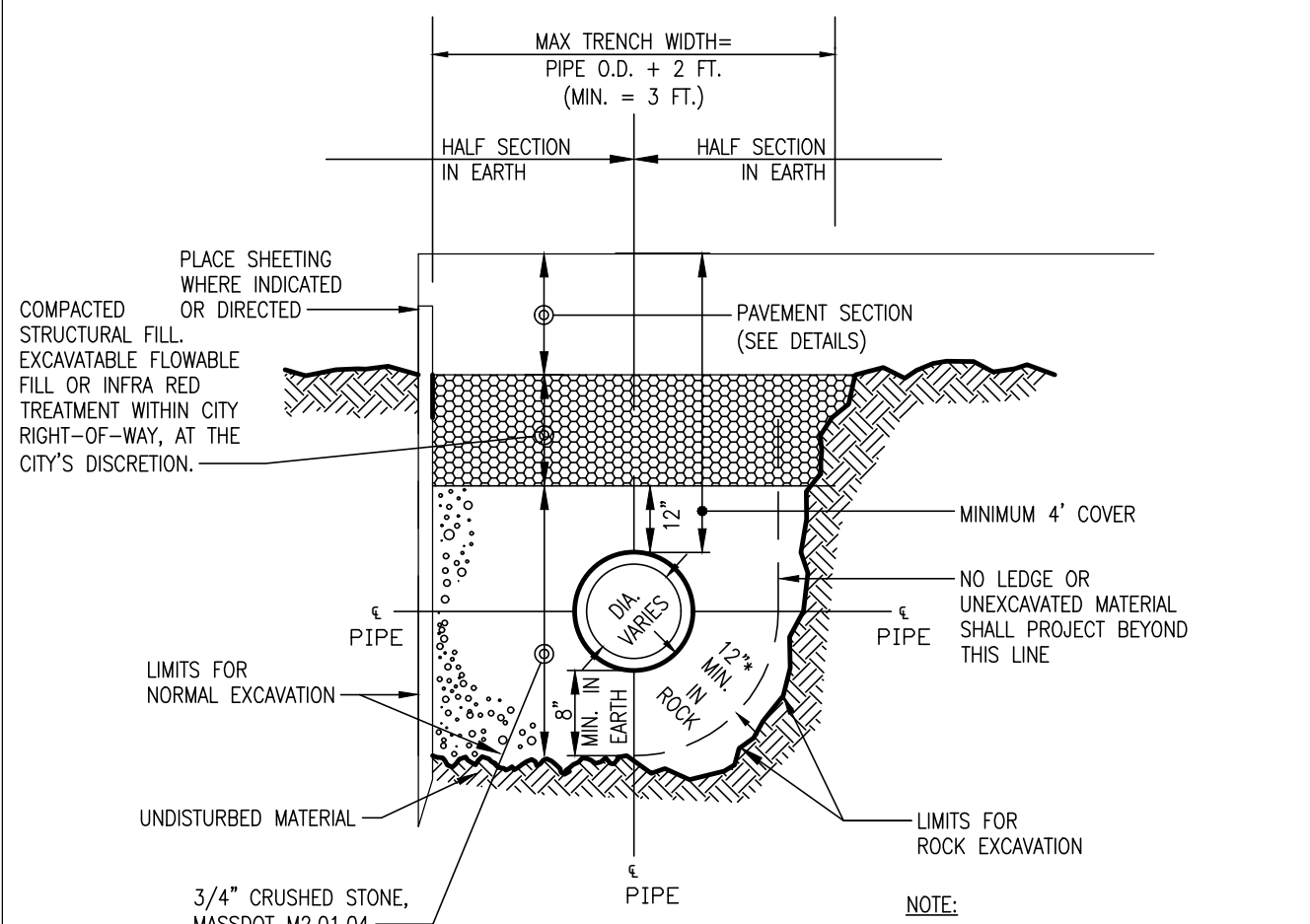
PIPE CONNECTIONS TO SEWER MANHOLE DETAIL
SCALE: N.T.S.



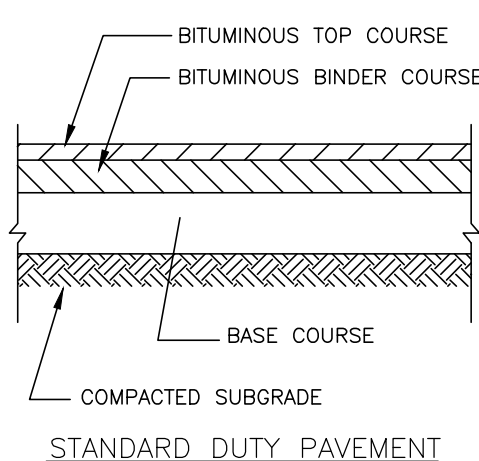
BITUMINOUS SIDEWALK DETAIL
SCALE: N.T.S.



TYPICAL OIL/WATER SEPARATOR DETAIL
SCALE: N.T.S.



TYPICAL SEWER TRENCH DETAIL
SCALE: N.T.S.



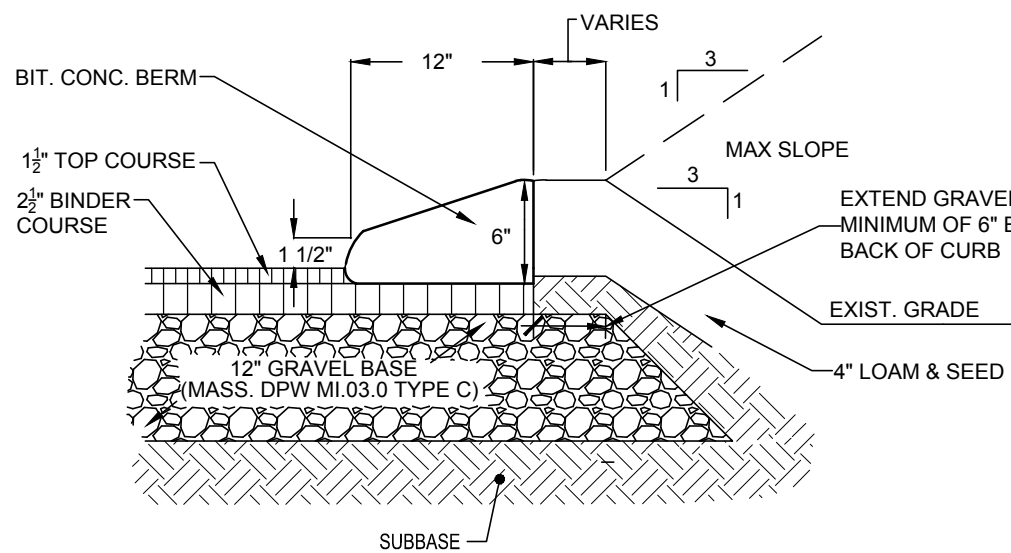
PAVEMENT LAYER	STANDARD DUTY PAVEMENT
TOP COURSE BITUMINOUS PAVEMENT SECTION M3.11.00	1 INCH
BINDER COURSE BITUMINOUS PAVEMENT SECTION M1.11.00	2 INCHES
BASE COURSE SEE NOTE 3	12 INCHES

PAVEMENT SECTION TABLE

NOTES:
1. BITUMINOUS TOP COURSE SHALL MEET MASS DOT ITEM M3.11.00 TABLE A (TOP COURSE)
2. BITUMINOUS BINDER COURSE SHALL MEET MASS DOT ITEM M3.11.00 TABLE A (BINDER COURSE)
3. BASE COURSE MATERIAL SHALL BE BASE COURSE SAND AND GRAVEL PER THE SPECIFICATIONS AND/OR RECLAIMED ASPHALT PAVEMENT BORROW MATERIAL PER MASSDOT ITEM M1.11.00. SEE DEMOLITION NOTES 10 AND 11, DWG. N-1.

BITUMINOUS PAVEMENT DETAIL
SCALE: N.T.S.

NOTE:
1. BITUMINOUS CONCRETE FOR CURBING SHALL BE CLASS I CONFORMING TO THE APPLICABLE REQUIREMENTS FOR DENSE MIX IN SECTION M3.11.03, TABLE A, OF THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
2. THE BITUMINOUS CONCRETE MIXTURE SHALL BE PLACED AND COMPACTED WITH A MACHINE CAPABLE OF SPREADING THE MIXTURE TRUE TO LINE AND GRADE AND TO THE SHAPE STIPULATED.
3. IF AT ANY TIME BEFORE ACCEPTANCE OF THE WORK ANY SOFT OR IMPERFECT SPOTS DEVELOP IN THE EXPOSED SURFACE OF THE CURB, THAT PORTION OF THE CURB SHALL BE REMOVED AND REPLACED WITH NEW CURBING AT NO COST TO THE OWNER.



PERMITTING SET

BITUMINOUS CONCRETE CURB DETAIL (CAPE COD)
SCALE: N.T.S.

1021 & 1025 MASSACHUSETTS AVENUE
ARLINGTON, MASSACHUSETTS

DATE: 09-19-2022
PROJECT No: 21-32

REVISIONS

DATE	BY	DESCRIPTION
01-23-2023	JB1	PEER REVIEW COMMENTS
02-22-2023	JB1	UPDATED BUILDING
04-14-2023	JB1	ZBA AND CONSERVATION COMMENTS

DRAWN BY:
CHECKED BY:

Patriot Engineering
35 BEDFORD STREET, SUITE 4
LEXINGTON, MASSACHUSETTS 02420
T: (978) 726-2654
www.patriot-eng.com

SITE DETAILS I
LOCATED IN
ARLINGTON, MA
(MIDDLESEX COUNTY)
PREPARED FOR
1025 MASS AVE., LLC

SHEET
9 OF 10

STORMWATER ANALYSIS & CALCULATIONS

for

**1021 & 1025 MASSACHUSETTS AVENUE
ARLINGTON, MASSACHUSETTS**

Prepared for:

1025 Mass Ave., LLC
13 Wheeling Avenue
Woburn, Massachusetts 01801

Prepared by:

Patriot Engineering
35 Bedford Street, Suite 4
Lexington, Massachusetts 02420
(978) 726-2654

Date: September 9, 2022

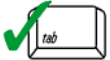
Revised: 04/14/2023



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

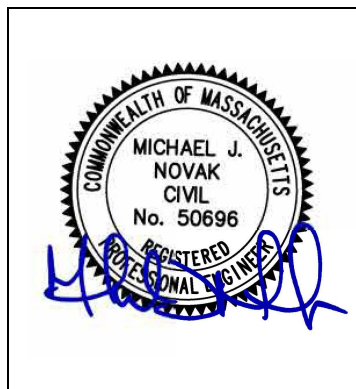
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



04-14-2023

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☒ New development
- ☐ Redevelopment
- ☐ Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

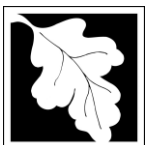
Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☒ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☒ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☒ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- ☒ The BMP is sized (and calculations provided) based on:
 - ☒ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☒ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
 - ☐ Redevelopment Project
 - ☐ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☐ Estimated operation and maintenance budget; and
 - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☐ An Illicit Discharge Compliance Statement is attached;
- ☒ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

Stormwater Management Standards

Project Narrative:

The project site is comprised of two mixed-use lots located within the Neighborhood Office (B-1) District. The parcels are identified on the Town of Arlington Assessor's Map 55-2 as Lots 19 and 20. The subject properties have a total area of 47,085 s.f., and site features currently existing include two mixed-use dwellings, bituminous concrete driveways with parking lots, gravel areas, walkways, grassed/landscaped areas and wooded areas.

The applicant is proposing to construct a multi-story Chapter 40B development consisting of a multi-family dwellings (with an interior parking garage) and ground level retail space, along with a plaza, grassed and landscaped areas.

This proposal utilizes conventional stormwater management techniques including a subsurface infiltration system for the treatment and mitigation of stormwater.

The following is a summary of how the proposed project meets the DEP Stormwater Standards:

Standard 1: No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

There are no untreated stormwater conveyances proposed to discharge to wetlands or waters of the Commonwealth from the project.

Standard 2: Peak Rate Attenuation - Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

For the purpose of analyzing pre and post development stormwater peak rates of runoff, three (3) design points have been selected based on existing topographic conditions which were used for both the pre and the post peak rate calculations. The design points are Massachusetts Avenue to the southwest, the abutting property to the east and the abutting property to the north.

The storm event rainfall frequencies used for this analysis have been selected based upon the Extreme Precipitation Tables for the Northeast Regional Climate Center. A full detail of peak rate attenuation along with supplemental stormwater calculations utilizing HydroCAD as well as pre and post drainage site plans have been submitted with the Definitive Subdivision Application. The details of this report will show that the peak rates of runoff for the 2-year, 10-year, 50-year and 100-year events have been either maintained or reduced from pre to post conditions through the use of a subsurface infiltration system.

The hydrologic calculations from the HydroCAD® have been included in this report and are located in section tab entitled "Hydrologic Calculations".

Proposed Design Points and Subcatchment Areas

Design Point #1 (DP#1) is Massachusetts Avenue to the southwest. The contributing area to the Design Point consists of Subcatchment 1 & 101.

Design Point #1:

<u>Storm Event</u>	<u>Existing Conditions (Pre)</u> <u>Peak Flow (CFS)</u>	<u>Proposed Conditions (Post)</u> <u>Peak Flow (CFS)</u>
2-Year (4.04 in./hr.)	0.2	0.2
10-Year (6.43 in./hr.)	0.5	0.4
50-Year (9.69 in./hr.)	1.1	0.7
100-Year (11.50 in./hr.)	1.4	0.9

Design Point #2 (DP#2) is the abutting bordering property to the east. The contributing area to the Design Point consists of Subcatchment 2, 2.1 & 201, 202.

Design Point #2:

<u>Storm Event</u>	<u>Existing Conditions (Pre)</u> <u>Peak Flow (CFS)</u>	<u>Proposed Conditions (Post)</u> <u>Peak Flow (CFS)</u>
2-Year (4.04 in./hr.)	0.9	0.3
10-Year (6.43 in./hr.)	2.2	0.8
50-Year (9.69 in./hr.)	4.3	1.6
100-Year (11.50 in./hr.)	6.0	2.7

Design Point #2 (DP#2) is the abutting bordering property to the north. The contributing area to the Design Point consists of Subcatchment 3 & 301.

Design Point #3:

<u>Storm Event</u>	<u>Existing Conditions (Pre)</u> <u>Peak Flow (CFS)</u>	<u>Proposed Conditions (Post)</u> <u>Peak Flow (CFS)</u>
2-Year (4.04 in./hr.)	0.2	0.2
10-Year (6.43 in./hr.)	0.4	0.4
50-Year (9.69 in./hr.)	0.6	0.6
100-Year (11.50 in./hr.)	0.8	0.8

Standard 3: Recharge - Loss of annual recharge to groundwater shall be eliminated or minimized...at a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This standard is met when the stormwater management system is designed to infiltrate the required recharge volume in accordance with the Mass Stormwater Handbook.

Loss of annual recharge to groundwater has been minimized through the use of stormwater Best Management Practices (BMP's), one (1) subsurface infiltration system, and a proposed operation and maintenance program are proposed for this project. One (1) subsurface infiltration system has been designed for recharging groundwater.

The classification is based upon the Natural Resource Conservation Service Maps dated May 1984 (map located in the Appendix to the narrative) the site consists of a mix of unclassified and Hydrological Group D soils. Onsite soil testing was conducted by Patriot Engineering on September 22, 2021 in the areas depicted on the attached plan. This testing revealed a gravelly loamy sand parent material, which yields a Rawls Soil Group classification of A soils. Groundwater was not in either of the two test pit locations; therefore, the bottom of those test pits has been used as the estimated seasonal high groundwater elevation for design purposes.

Utilizing the current regulations, the proposed design will meet this standard as per the following calculation:

$$Rv = Fx$$

Rv = Required Recharge Volume

F = Target Depth Factor associated with hydrologic soil groups located in table 2.3.2 in Volume 3 of the Stormwater Management Handbook

x = Total impervious area proposed

Impervious area within project area (HSG A): 27,765 square feet (sf).

Required recharge volume depth factor for A type soils: 0.6 inches

Therefore Rv =

$$(27,765)(0.6\text{inches}/12\text{ inches per foot})$$

$$Rv = 1,388\text{ cubic feet (cf)}$$

The proposed subsurface infiltration system provides a total recharge storage volume of 10,498 cf below the outlet.

In accordance with the Stormwater Handbook, a capture area adjustment calculation has been provided in the appendix of this report to ensure a minimum of 65% of the site impervious areas are directed into recharge facilities. The calculation demonstrates the proposed project directs 92% of the site's proposed impervious surface areas will be directed toward the recharge facility.

Standard 4: Water Quality – Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). The standard is met with pollution prevention plans, stormwater

BMP's sized to capture required water quality volume, and pretreatment measures.

The stormwater management system has been designed to remove a minimum of 80% of the average annual post-construction load of Total Suspended Solids (TSS). These percentages have been achieved by the use of a subsurface infiltration system which is collecting the runoff from the proposed roof ("clean runoff") via roof drains and downspouts and portions of proposed bituminous concrete and stone dust walkways with associated grassed/landscaped areas via area drains with sumps and underground piping.

The Stormwater Management Handbook assigns TSS removal percentages to each treatment BMP. Each treatment BMP is sized to capture the required water quality volume as calculated in accordance with the Handbook in order to achieve the assigned TSS removal rates.

General Equation from Stormwater Management Handbook

$$V_{wq} = (D_{wq})(A)$$

V_{wq} = required water quality volume

D_{wq} = water quality depth (1" for critical areas, 0.5" for non-critical areas)

A = impervious area

The following are treatment sizing calculations for portions of the treatment trains based on the 0.5" for non-critical areas:

Train 1 (Roof area/bit. conc. walk drains to PSIS)

$$V_{wq} = (25,522)(0.5"/12) = 1,063 \text{ cf}$$

The proposed subsurface infiltration system provides a total recharge storage volume of 10,498 cf below the outlet.

A separate document entitled "Operation and Maintenance & Erosion and Sedimentation Control Program for a Proposed Stormwater Management System" is included as part of this report. Suitable practices for source control and long-term pollution prevention have been identified and shall be implemented as discussed.

The utilization of pretreatment and treatment BMP's combined with the operation and maintenance plan provides compliance with this standard.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs) – Source control and pollution prevention shall be implemented in accordance with the Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.

Stormwater Standard 5 is not applicable to this project. The proposed development will not subject the site to higher potential pollutant loads as defined in the Massachusetts Department of Environmental protection Wetlands and Water Quality Regulations.

LUHPPLs are identified in 310 CMR 22.20B(2) and C(2)(a)-(k) and (m) and CMR 22.21(2)(a)(1)-(8) and (b)(1)-(6), areas within a site that are the location of activities that are subject to an individual National Pollutant Discharge Elimination System (NPDES) permit or the NPDES Multi-sector General Permit; auto fueling facilities, exterior fleet storage areas, exterior vehicle service and equipment cleaning areas; marinas and boatyards; parking lots with high-intensity-use; confined disposal facilities and disposal sites.

Standard 6: Critical Areas – Stormwater discharges to critical areas require the use of specific source control and pollution prevention measures and specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas.

Stormwater Standard 6 is not applicable to this project given that proposed stormwater does not discharge near a critical area. Critical areas being Outstanding Resource Waters and Special Resource Waters as designated in 314 CMR 4.0, recharge areas for public water supplies as defined in 310 CMR 22.02, bathing beaches as defined in 105 CMR 445.000, cold-water fisheries and shellfish growing areas as defined in 314 CMR 9.02 and 310 CMR 10.04. The design points are not considered a critical area therefore Standard #6 does not apply to this project.

Standard 7: Redevelopments – A redevelopment project is required to meet Standards 1-6 only to the maximum extent practicable. Remaining standards shall be met as well as the project shall improve the existing conditions.

Stormwater Standard 7 is not applicable to this project. Within the Stormwater Management Handbook (volume 1 chapter 1 page 20), the definition of a redevelopment project includes, “development, rehabilitation, expansion and phased projects on previously developed sites, provided the redevelopment results in no net increase in impervious area”.

This project will not result in a reduction of impervious area in the proposed conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan shall be implemented.

An Operation and Maintenance & Erosion and Sediment Control Program for a Proposed Stormwater Management System is included with this report. The program details the construction period operation and maintenance plan and sequencing for pollution prevention measures and erosion and sedimentation controls. Locations of erosion control measures for the project are depicted on the site plan set accompanying this report.

Standard 9: A long term Operation and Maintenance Plan shall be implemented.

An Operation and Maintenance & Erosion and Sediment Control Program for a Proposed Stormwater Management System is included with this report. The long term operation and maintenance section of the program provides details and the schedule for routine and non-routine maintenance tasks to be implemented at the completion of the project.

Standard 10: Prohibition of Illicit Discharges – Illicit discharges to the stormwater management system are prohibited.

Illicit discharges to the stormwater management system are discharges that are not entirely comprised of stormwater. Discharges to the stormwater management system from the following activities or facilities are permissible: Firefighting, water line flushing, landscape irrigation, uncontaminated groundwater, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from swimming pools, water used for street washing and water used to clean residential buildings without detergents. All other illicit discharges are prohibited.

There are no known illicit discharges anticipated through the completion of this project. During construction and post construction procedures are provided to dissipate the potential for illicit discharges to the drainage system. Post construction preventions of illicit discharges are described in the Operation and Maintenance Program under the Good Housekeeping Practices section of the report.

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CALCULATION METHODS

- TR 20 SCS Unit Hydrograph Procedure
- Runoff Curve Numbers
- Time of Concentration by TR55 Methodology
- Reach and Pond Rating by the Storage-Indication Method
- Manning Equation

SOURCE OF DATA

- Technical Report No. 20
- Technical Report No. 55
- Extreme Precipitation Tables for the NOAA Atlas-14
- Field Survey and Soil Testing by RJ O'Connell and Associates.
- Massachusetts Stormwater Handbook February 2008

Calculation Objective

The purpose of this drainage analysis is to design a stormwater management system that maintains and/or reduces the peak rates and volumes of stormwater runoff from pre-development conditions in the post development conditions for the 2, 10, 50 and 100-year design storm events

The proposed stormwater management system designed for this project will consist of the installation of one (1) subsurface infiltration system to allow for the mitigation of the runoff from the proposed impervious areas within the site.

There is one (1) proposed subsurface infiltration system to capture and mitigate stormwater runoff from the entire proposed roof and portions of the proposed walkways and grassed/landscaped areas. The installation of the subsurface infiltration system will allow the development to not have an increase in stormwater runoff (rate or volume) from the site during the 2, 10, 50 and 100-year design storms.

Classification of Soils

Existing soil conditions within the limits of the watershed analyzed for this study have been categorized as:

- Urban Land: Unclassified Hydrologic Group
- Udorthents, wet substratum: Hydrologic Group D

The classification is based upon the Natural Resource Conservation Service Maps dated May 1984 (map located in the Appendix to the narrative) the site consists of a mix of Urban Land (unclassified) and Hydrological Group D soils. Onsite soil testing was conducted by RJ O'Connell & Associates on September 22, 2021 in the areas depicted on the attached plan. This testing revealed a gravelly loamy sand parent material, which yields a Rawls Soil Group classification of A soils. Groundwater was not in either of the two test pit locations; therefore, the bottom of those test pits has been used as the estimated seasonal high groundwater elevation for design purposes.

Selection of Storm Events

The storm event rainfall frequencies used for this analysis have been selected based upon the Extreme Precipitation Tables for the NOAA Atlas 14. Rainfall frequency data has been provided as follows:

<u>Frequency</u>	<u>Rainfall [24 hour event (inch)]</u>
2 year	4.04
10 year	6.43
50 Year	9.69
100 year	11.50

Existing Site Overview

The project site is comprised of two mixed-use lots located within the Neighborhood Office (B-1) District. The parcels are identified on the Town of Arlington Assessor's Map 55-2 as Lots 19 and 20. The subject properties have a total area of 47,085 s.f., and site features currently existing include two mixed-use dwellings, bituminous concrete driveways with parking lots, gravel areas, walkways, grassed/landscaped areas and wooded areas.

The slope of the existing site promotes overland runoff in three (3) main directions: southwesterly toward Massachusetts Avenue, easterly and northerly toward an existing parking lot on the abutting property. This result in four (4) subcatchments (SC) and three (3) design points (DP):

- **Subcatchment SC-1** – This subcatchment area consists of portions of existing mixed-use buildings, driveway/walkways and grassed areas. Stormwater runoff generated in this subcatchment flows southwest to Massachusetts Avenue to design point 1 (**DP1**).
- **Subcatchment SC-2** – This subcatchment area consists portions of existing mixed-use buildings, driveway/walkways, gravel areas, shed remnants and grassed/wooded areas. Stormwater runoff generated in this subcatchment flows east to an existing depression that overflows towards the existing parking lot on the abutting property to design point 2 (**DP2**).
- **Subcatchment SC-2.1** – This subcatchment area consists portions of existing mixed-use buildings, driveway/walkways, gravel areas and grassed/wooded areas. Stormwater runoff generated in this subcatchment flows east to an existing depression that overflows towards the existing parking lot on the abutting property to design point 2 (**DP2**).
- **Subcatchment SC-3** – This subcatchment area consists portions of existing mixed-use buildings, driveway/walkways, gravel areas, shed remnants and grassed/wooded areas. Stormwater runoff generated in this subcatchment flows north to the existing parking lot on the abutting property to design point 3 (**DP3**).

Proposed Site Overview

The proposed project is comprised of the development of the existing properties into a 40B mixed-use development. The applicant is proposing a multi-story mixed-used building with residential and ground level commercial components. The building will be constructed with an interior parking garage, driveway, walkways, a stormwater management system, new utilities and associated grassed/landscaped areas.

A comprehensive stormwater management system that meets the Town of Arlington and MassDEP standards. The project proponent proposes to install a single subsurface infiltration system to collect and infiltrate stormwater run-off from the proposed structure as depicted on the Site Plans. The accompanying Stormwater Report contains supporting calculations, and an Operation and Maintenance Plan, and demonstrates that

peak rates and volumes of stormwater run-off will be maintained or reduced for the 2, 10, 50, and 100-year statistical storm events. The proposed project has been developed with the intent of maintaining the existing drainage patterns of the site to the maximum extent practicable.

The four (4) subcatchments in the post construction scenario are as follows:

- **Subcatchment SC101** – This subcatchment area consists of portions of the proposed driveway/walkway, portions of the abutting building roof area and grassed areas. Stormwater runoff generated in this subcatchment flows southwest to Massachusetts Avenue to design point 1 (**DP1**).
- **Subcatchment SC201** – This subcatchment area consists of a portion of the proposed walkway, portions of the abutting lot roofs and grassed areas. Stormwater runoff generated in this subcatchment flows east to the existing parking lot on the abutting property to design point 2 (**DP2**).
- **Subcatchment SC202** – This subcatchment area consists of proposed roof area, portions of the proposed bituminous concrete and stone dust walkways, and grassed/landscaped areas. Stormwater runoff generated in this subcatchment will be directed to proposed subsurface infiltration system (**PSIS-1**), via gutters and downspouts or area drains and pip. PSIS-1 has been designed with an overflow system that allows a portion of the stormwater runoff directed to the system to overflow east to the existing parking lot on the abutting property to design point 2 (**DP2**).
- **Subcatchment SC301** – This subcatchment area consists of proposed grass area with a mulched walkway for emergency fire access. Stormwater runoff generated in this subcatchment flows north to the existing parking lot on the abutting property to design point 3 (**DP3**).

Summary of Flows at the Design Point

Design Point 1 (DP1):

Peak Rates (CFS)

DP1	2-Year Storm	10-Year Storm	50-Year Storm	100-Year Storm
Existing	0.2	0.5	1.1	1.4
Proposed	0.2	0.4	0.7	0.9

Peak Volumes (AF)

DP1	2-Year Storm	10-Year Storm	50-Year Storm	100-Year Storm
Existing	0.02	0.04	0.08	0.10
Proposed	0.01	0.03	0.05	0.06

Design Point 2 (DP2):**Peak Rates (CFS)**

DP2	2-Year Storm	10-Year Storm	50-Year Storm	100-Year Storm
Existing	0.9	2.2	4.3	6.2
Proposed	0.3	0.8	1.6	2.7

Peak Volumes (AF)

DP2	2-Year Storm*	10-Year Storm*	50-Year Storm	100-Year Storm
Existing	0.03	0.11	0.28	0.38
Proposed	0.03	0.07	0.20	0.32

*NO FLOW FROM INFILTRATION SYSTEM

Design Point 3 (DP3):**Peak Rates (CFS)**

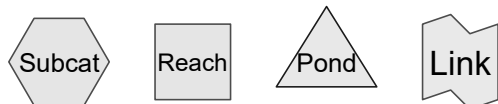
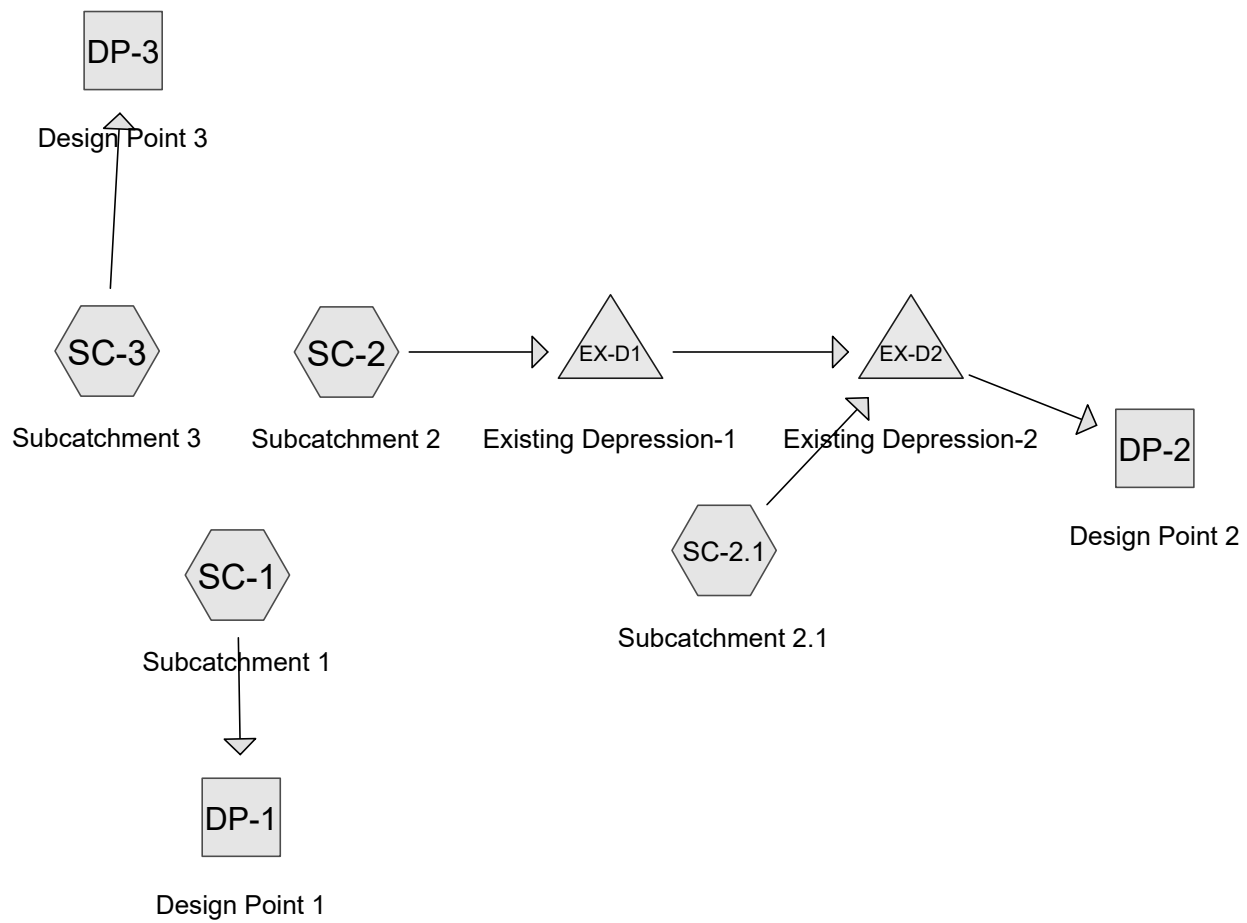
DP3	2-Year Storm	10-Year Storm	50-Year Storm	100-Year Storm
Existing	0.2	0.4	0.6	0.8
Proposed	0.2	0.4	0.6	0.8

Peak Volumes (AF)

DP3	2-Year Storm	10-Year Storm	50-Year Storm	100-Year Storm
Existing	0.01	0.03	0.05	0.06
Proposed	0.01	0.03	0.05	0.06

Conclusion

The calculations for each of the selected Design Points demonstrate that proposed site improvements will not result in an increase in the peak rate or volume of stormwater runoff for the 2-year, 10-year, 50-year or 100-year 24-hour storm events at the design points with the proposed stormwater mitigation system improvements.



Routing Diagram for 21583-PRE_rev1
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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Yr 24 Hr	Type III 24-hr		Default	24.00	1	4.04	2
2	10-Yr 24 Hr	Type III 24-hr		Default	24.00	1	6.43	2
3	50-Yr 24 Hr	Type III 24-hr		Default	24.00	1	9.69	2
4	100-Yr 24 Hr	Type III 24-hr		Default	24.00	1	11.50	2

21583-PRE_rev1

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.373	39	>75% Grass cover, Good, HSG A (SC-1, SC-2, SC-2.1)
0.002	80	>75% Grass cover, Good, HSG D (SC-2.1)
0.001	98	Bulkheads (SC-2, SC-2.1)
0.039	98	Driveway/Walkways (SC-1)
0.232	98	Driveway/Walkways/Patios (SC-2, SC-2.1)
0.015	96	Gravel surface, HSG A (SC-2, SC-2.1)
0.118	98	Roof (SC-1, SC-2, SC-2.1)
0.004	98	Shed (SC-2)
0.180	30	Woods, Good, HSG A (SC-2, SC-2.1)
0.205	77	Woods, Good, HSG D (SC-2, SC-2.1, SC-3)
1.169	65	TOTAL AREA

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentSC-1: Subcatchment1 Runoff Area=7,364 sf 45.00% Impervious Runoff Depth>1.11"
 Flow Length=52' Slope=0.0200 '/' Tc=6.0 min CN=66 Runoff=0.2 cfs 0.02 af

SubcatchmentSC-2: Subcatchment2 Runoff Area=11,386 sf 15.47% Impervious Runoff Depth>0.21"
 Flow Length=212' Tc=11.4 min CN=46 Runoff=0.0 cfs 0.00 af

SubcatchmentSC-2.1: Subcatchment2.1 Runoff Area=28,605 sf 42.28% Impervious Runoff Depth>1.42"
 Flow Length=225' Tc=8.2 min CN=71 Runoff=0.9 cfs 0.08 af

SubcatchmentSC-3: Subcatchment3 Runoff Area=3,546 sf 0.00% Impervious Runoff Depth>1.84"
 Flow Length=57' Tc=6.0 min CN=77 Runoff=0.2 cfs 0.01 af

Reach DP-1: Design Point 1 Inflow=0.2 cfs 0.02 af
 Outflow=0.2 cfs 0.02 af

Reach DP-2: Design Point 2 Inflow=0.9 cfs 0.03 af
 Outflow=0.9 cfs 0.03 af

Reach DP-3: Design Point 3 Inflow=0.2 cfs 0.01 af
 Outflow=0.2 cfs 0.01 af

Pond EX-D1: Existing Depression-1 Peak Elev=79.19' Storage=27 cf Inflow=0.0 cfs 0.00 af
 Discarded=0.0 cfs 0.00 af Primary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af

Pond EX-D2: Existing Depression-2 Peak Elev=76.59' Storage=507 cf Inflow=0.9 cfs 0.08 af
 Discarded=0.1 cfs 0.04 af Primary=0.9 cfs 0.03 af Outflow=1.0 cfs 0.08 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.11 af Average Runoff Depth = 1.13"
66.27% Pervious = 0.774 ac 33.73% Impervious = 0.394 ac

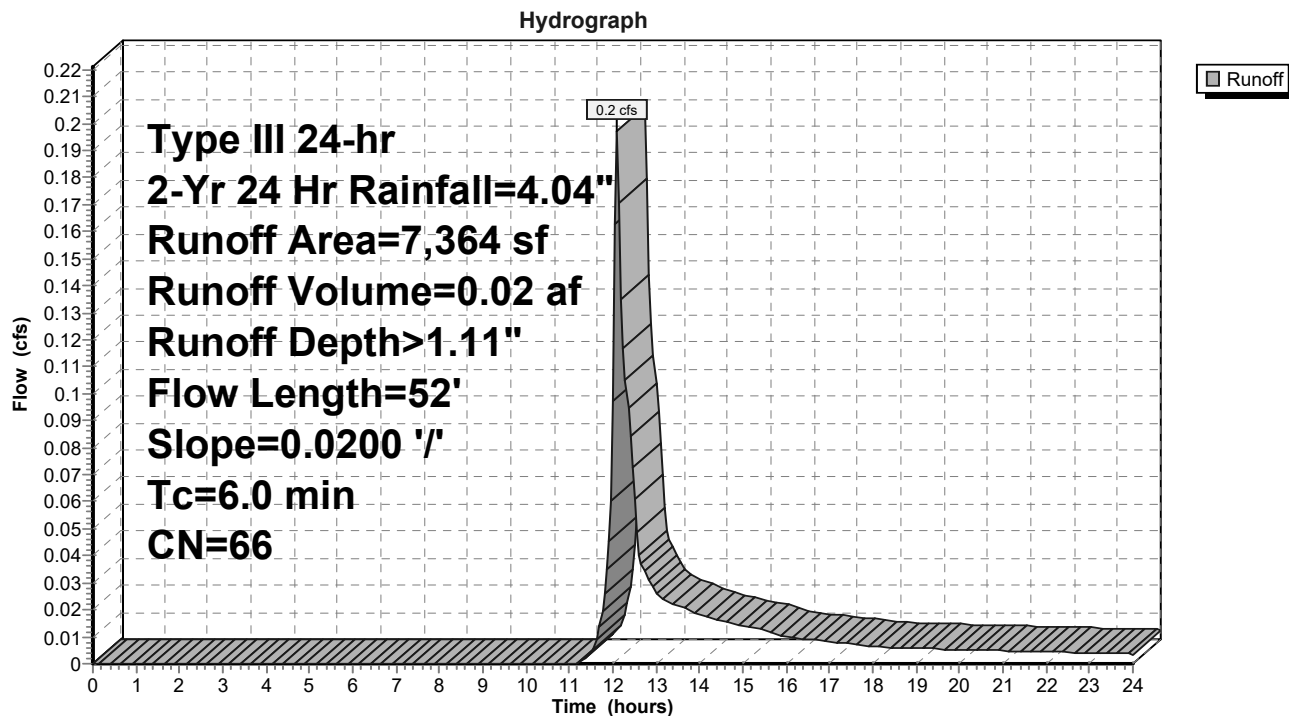
Summary for Subcatchment SC-1: Subcatchment 1

Runoff = 0.2 cfs @ 12.10 hrs, Volume= 0.02 af, Depth> 1.11"
Routed to Reach DP-1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

	Area (sf)	CN	Description
	3,644	39	>75% Grass cover, Good, HSG A
*	1,684	98	Driveway/Walkways
*	1,412	98	Roof
*	218	98	Roof
	406	39	>75% Grass cover, Good, HSG A
	7,364	66	Weighted Average
	4,050		55.00% Pervious Area
	3,314		45.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	24	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
0.4	26	0.0200	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.04"
0.0	2	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8					Direct Entry, Min. Engineering Practice
6.0	52	Total			

Subcatchment SC-1: Subcatchment 1

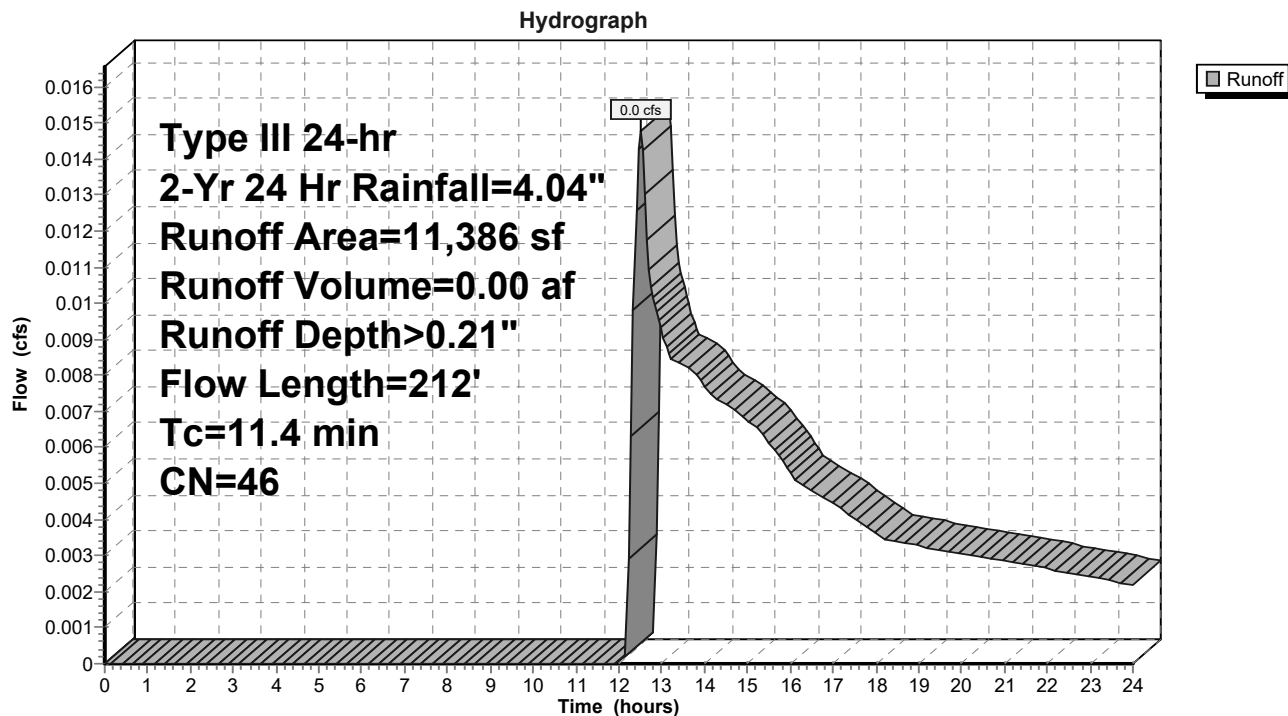
Summary for Subcatchment SC-2: Subcatchment 2

Runoff = 0.0 cfs @ 12.50 hrs, Volume= 0.00 af, Depth> 0.21"
 Routed to Pond EX-D1 : Existing Depression-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

Area (sf)	CN	Description
3,752	39	>75% Grass cover, Good, HSG A
23	77	Woods, Good, HSG D
* 811	98	Driveway/Walkways/Patios
* 735	98	Roof
3,208	30	Woods, Good, HSG A
* 23	98	Bulkheads
* 192	98	Shed
46	96	Gravel surface, HSG A
2,596	39	>75% Grass cover, Good, HSG A
11,386	46	Weighted Average
9,625		84.53% Pervious Area
1,761		15.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	21	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
7.1	29	0.0200	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
0.7	50	0.0600	1.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	76	0.1050	1.6		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.3	36	0.2000	2.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
11.4	212	Total			

Subcatchment SC-2: Subcatchment 2

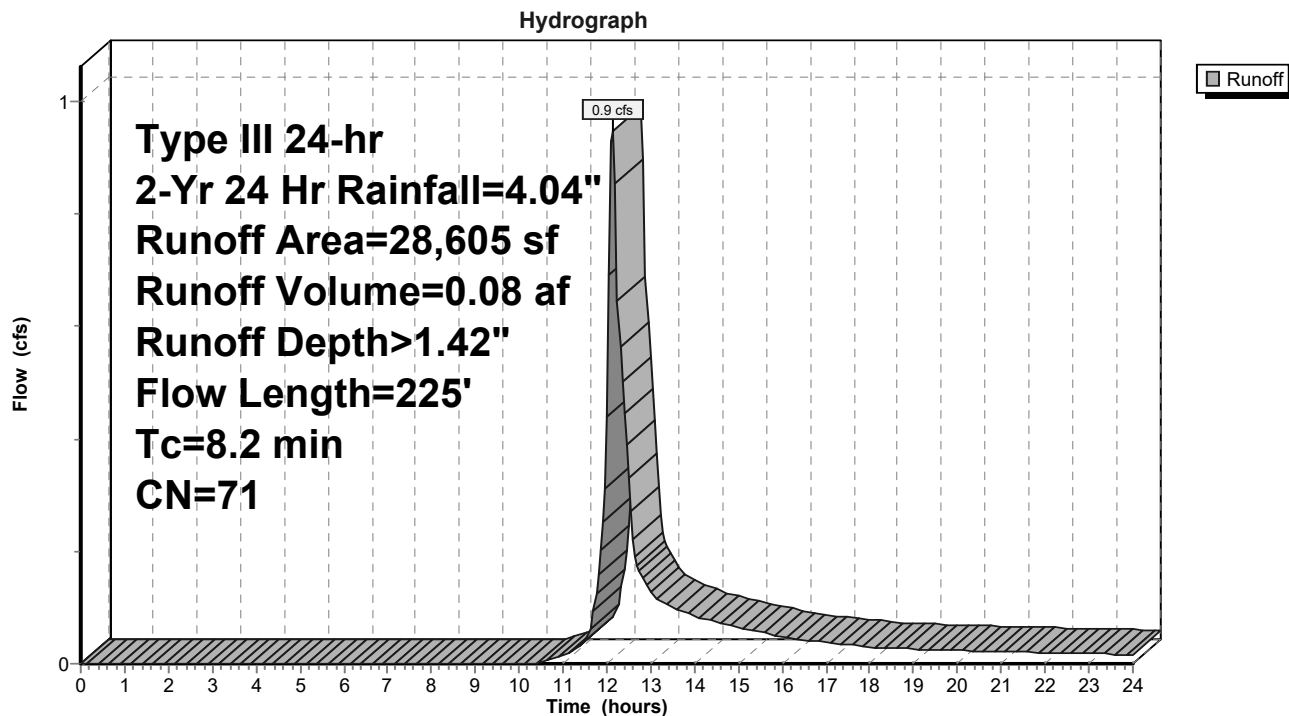
Summary for Subcatchment SC-2.1: Subcatchment 2.1

Runoff = 0.9 cfs @ 12.13 hrs, Volume= 0.08 af, Depth> 1.42"
 Routed to Pond EX-D2 : Existing Depression-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

Area (sf)	CN	Description
0	39	>75% Grass cover, Good, HSG A
76	80	>75% Grass cover, Good, HSG D
5,371	77	Woods, Good, HSG D
* 9,310	98	Driveway/Walkways/Patios
* 2,765	98	Roof
4,626	30	Woods, Good, HSG A
* 20	98	Bulkheads
597	96	Gravel surface, HSG A
5,840	39	>75% Grass cover, Good, HSG A
28,605	71	Weighted Average
16,510		57.72% Pervious Area
12,095		42.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	41	0.0200	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
1.8	9	0.0560	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
1.7	119	0.0560	1.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.4	56	0.2210	2.4		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
8.2	225	Total			

Subcatchment SC-2.1: Subcatchment 2.1

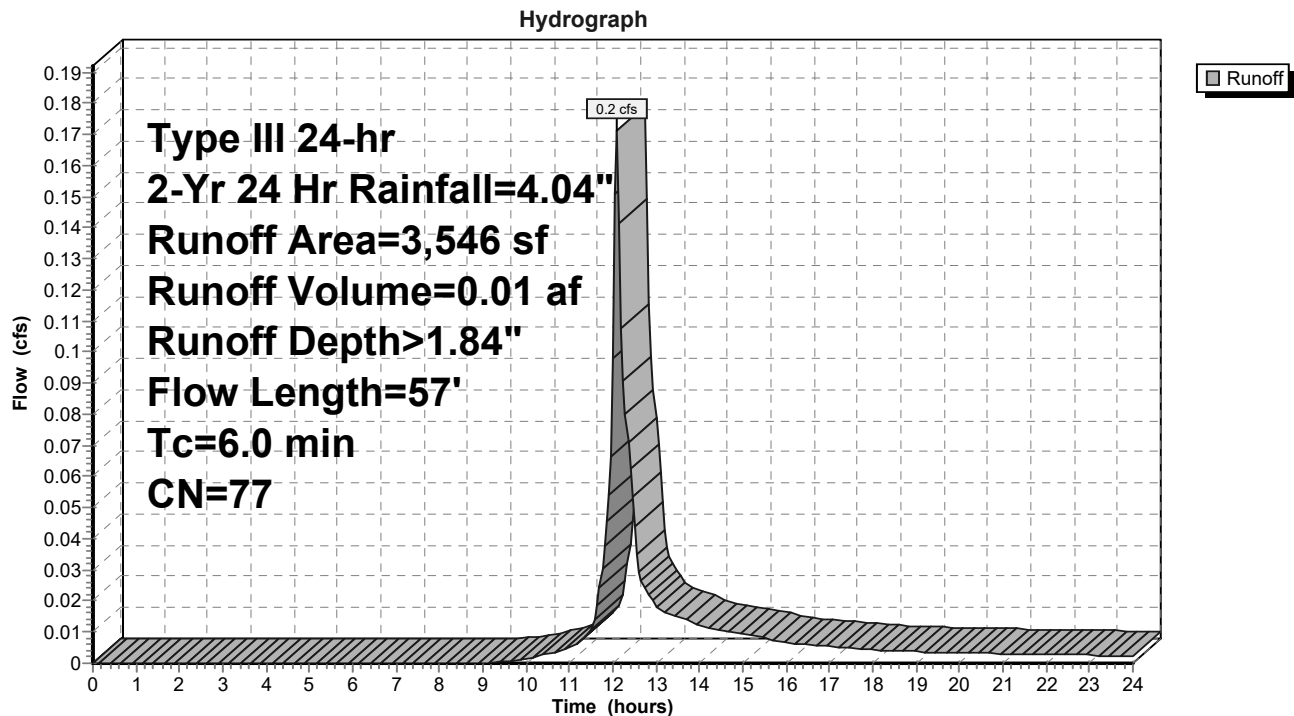
Summary for Subcatchment SC-3: Subcatchment 3

Runoff = 0.2 cfs @ 12.10 hrs, Volume= 0.01 af, Depth> 1.84"
 Routed to Reach DP-3 : Design Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

Area (sf)	CN	Description
3,546	77	Woods, Good, HSG D
3,546		100.00% Pervious Area

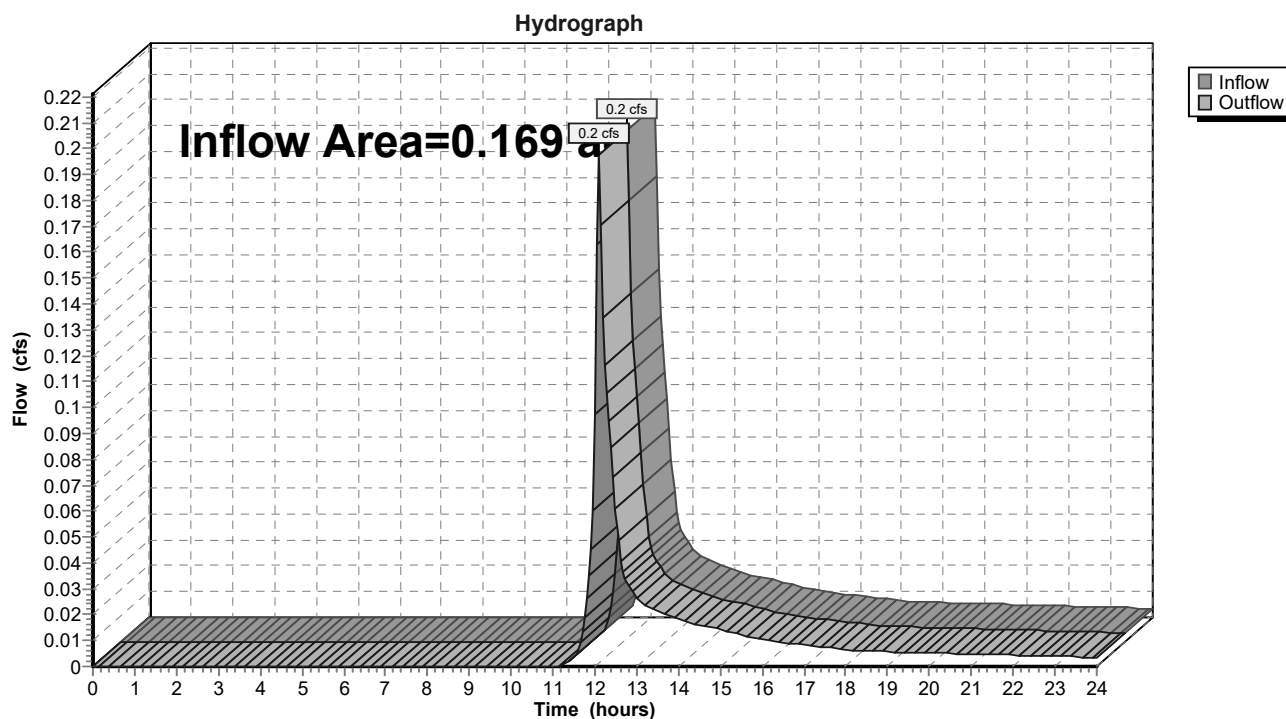
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.1170	0.2		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
0.2	7	0.0200	0.7		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
5.6	57	Total, Increased to minimum Tc = 6.0 min			

Subcatchment SC-3: Subcatchment 3

Summary for Reach DP-1: Design Point 1

Inflow Area = 0.169 ac, 45.00% Impervious, Inflow Depth > 1.11" for 2-Yr 24 Hr event
Inflow = 0.2 cfs @ 12.10 hrs, Volume= 0.02 af
Outflow = 0.2 cfs @ 12.10 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min

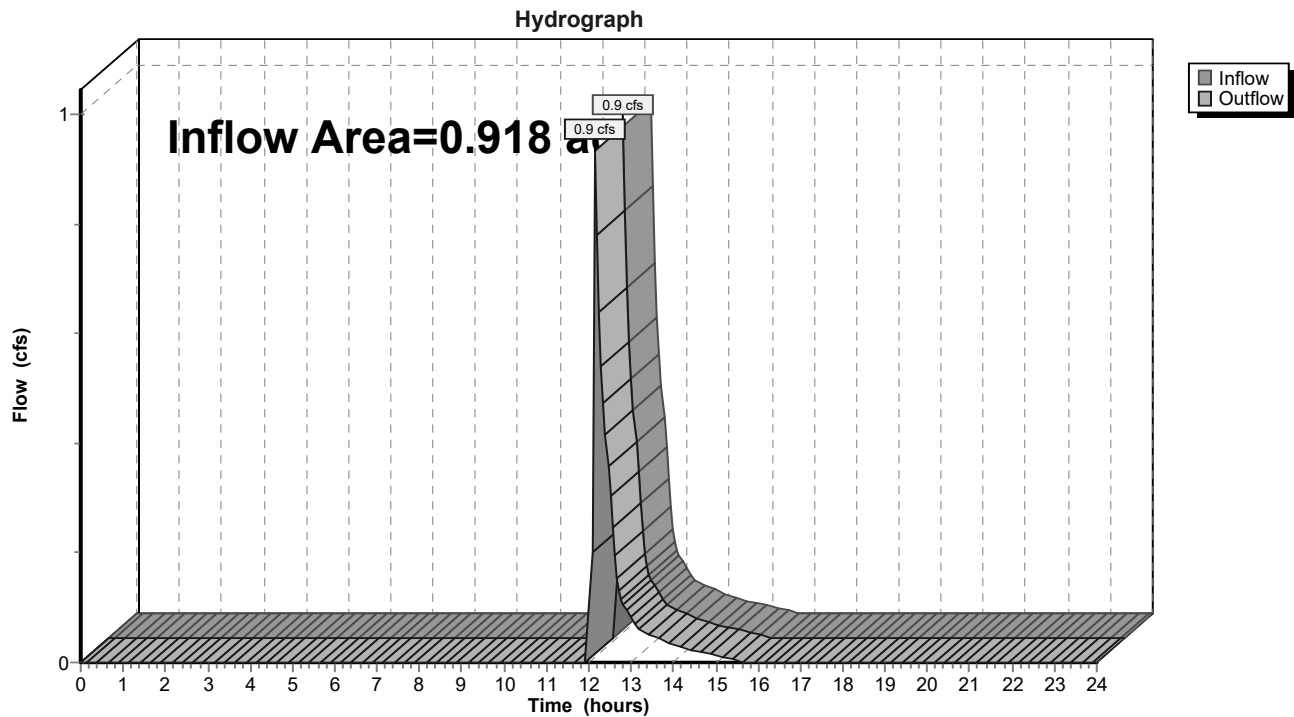
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-1: Design Point 1

Summary for Reach DP-2: Design Point 2

Inflow Area = 0.918 ac, 34.65% Impervious, Inflow Depth = 0.41" for 2-Yr 24 Hr event
Inflow = 0.9 cfs @ 12.17 hrs, Volume= 0.03 af
Outflow = 0.9 cfs @ 12.17 hrs, Volume= 0.03 af, Atten= 0%, Lag= 0.0 min

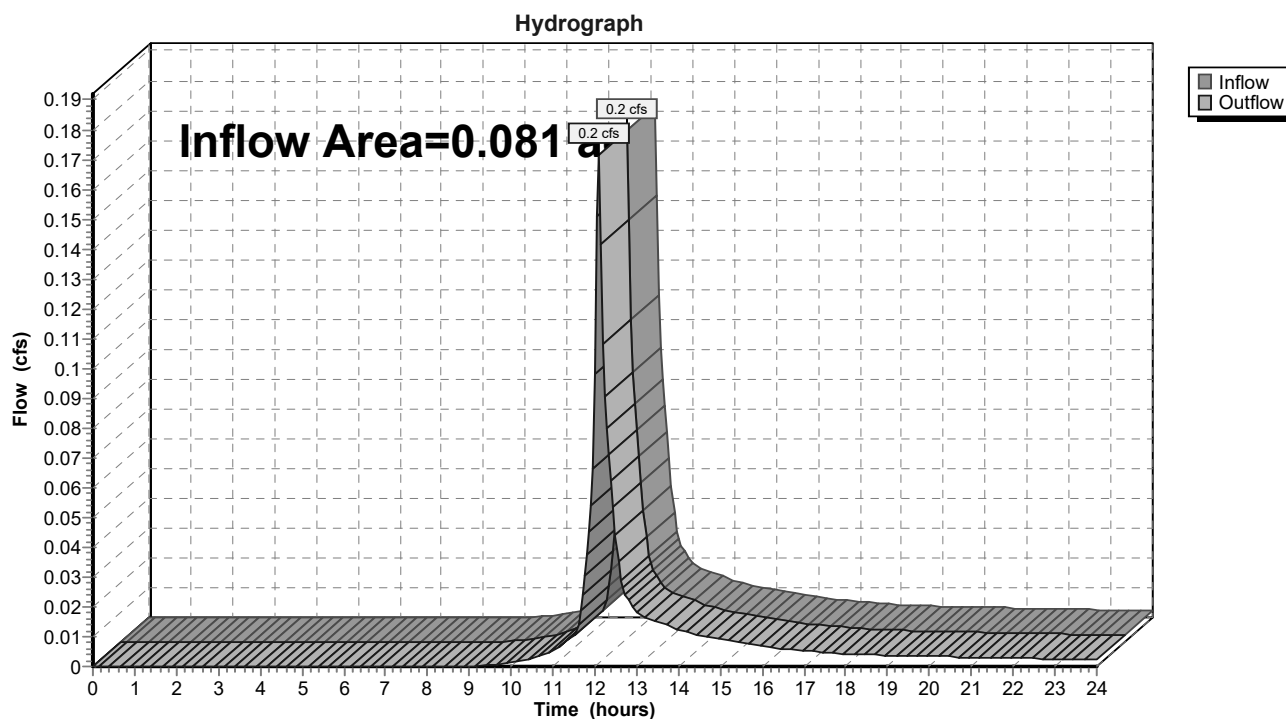
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-2: Design Point 2

Summary for Reach DP-3: Design Point 3

Inflow Area = 0.081 ac, 0.00% Impervious, Inflow Depth > 1.84" for 2-Yr 24 Hr event
Inflow = 0.2 cfs @ 12.10 hrs, Volume= 0.01 af
Outflow = 0.2 cfs @ 12.10 hrs, Volume= 0.01 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-3: Design Point 3

Summary for Pond EX-D1: Existing Depression-1

Inflow Area = 0.261 ac, 15.47% Impervious, Inflow Depth > 0.21" for 2-Yr 24 Hr event
 Inflow = 0.0 cfs @ 12.50 hrs, Volume= 0.00 af
 Outflow = 0.0 cfs @ 14.71 hrs, Volume= 0.00 af, Atten= 52%, Lag= 132.6 min
 Discarded = 0.0 cfs @ 14.71 hrs, Volume= 0.00 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af
 Routed to Pond EX-D2 : Existing Depression-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 79.19' @ 14.71 hrs Surf.Area= 126 sf Storage= 27 cf

Plug-Flow detention time= 51.5 min calculated for 0.00 af (98% of inflow)
 Center-of-Mass det. time= 43.6 min (1,032.8 - 989.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	78.80'	819 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
78.80	32	25.0	0	0	32
79.00	64	46.0	9	9	151
80.00	648	104.0	305	315	847
80.50	1,421	148.0	505	819	1,732

Device	Routing	Invert	Outlet Devices											
#1	Primary	80.10'	20.0' long x 5.0' breadth Broad-Crested Rectangular Weir											
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00											
			2.50 3.00 3.50 4.00 4.50 5.00 5.50											
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65											
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88											
#2	Discarded	78.80'	2.410 in/hr Exfiltration over Surface area											

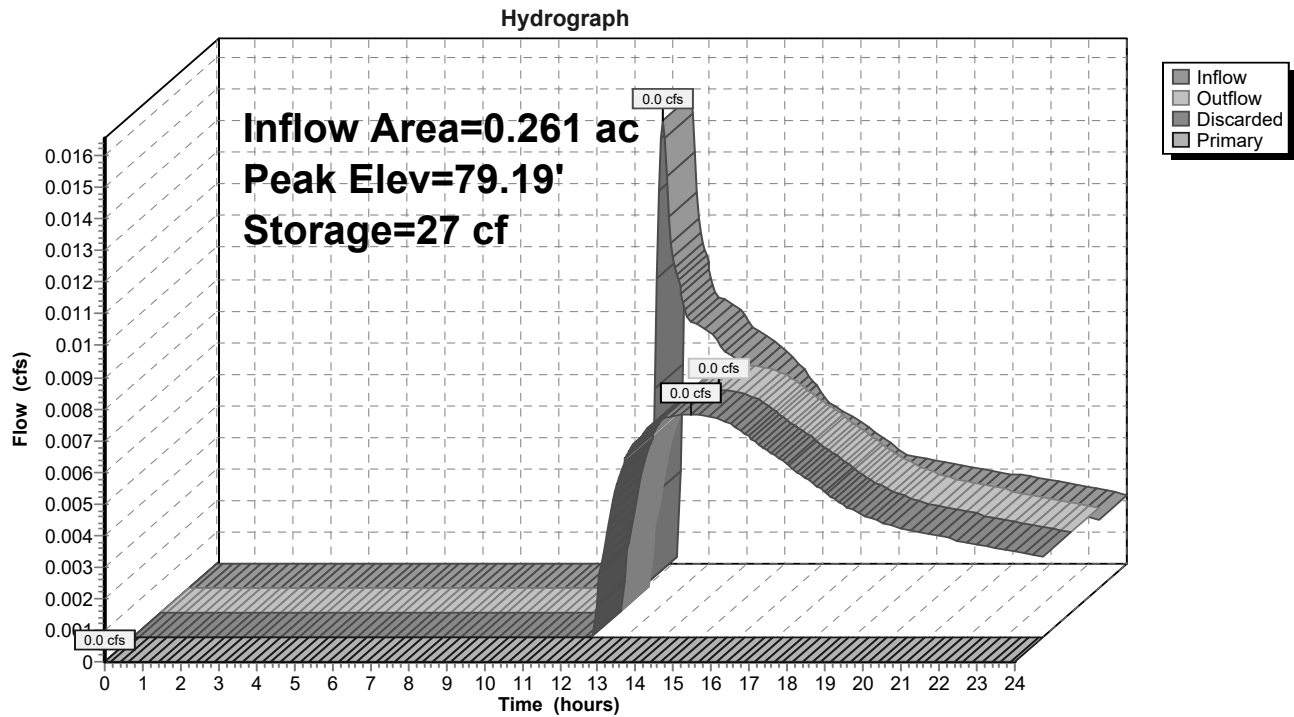
Discarded OutFlow Max=0.0 cfs @ 14.71 hrs HW=79.19' (Free Discharge)

↑ **2=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=78.80' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond EX-D1: Existing Depression-1



Summary for Pond EX-D2: Existing Depression-2

Inflow Area = 0.918 ac, 34.65% Impervious, Inflow Depth > 1.02" for 2-Yr 24 Hr event
 Inflow = 0.9 cfs @ 12.13 hrs, Volume= 0.08 af
 Outflow = 1.0 cfs @ 12.17 hrs, Volume= 0.08 af, Atten= 0%, Lag= 2.3 min
 Discarded = 0.1 cfs @ 12.17 hrs, Volume= 0.04 af
 Primary = 0.9 cfs @ 12.17 hrs, Volume= 0.03 af
 Routed to Reach DP-2 : Design Point 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 76.59' @ 12.17 hrs Surf.Area= 1,103 sf Storage= 507 cf

Plug-Flow detention time= 66.2 min calculated for 0.07 af (96% of inflow)
 Center-of-Mass det. time= 47.8 min (905.8 - 858.1)

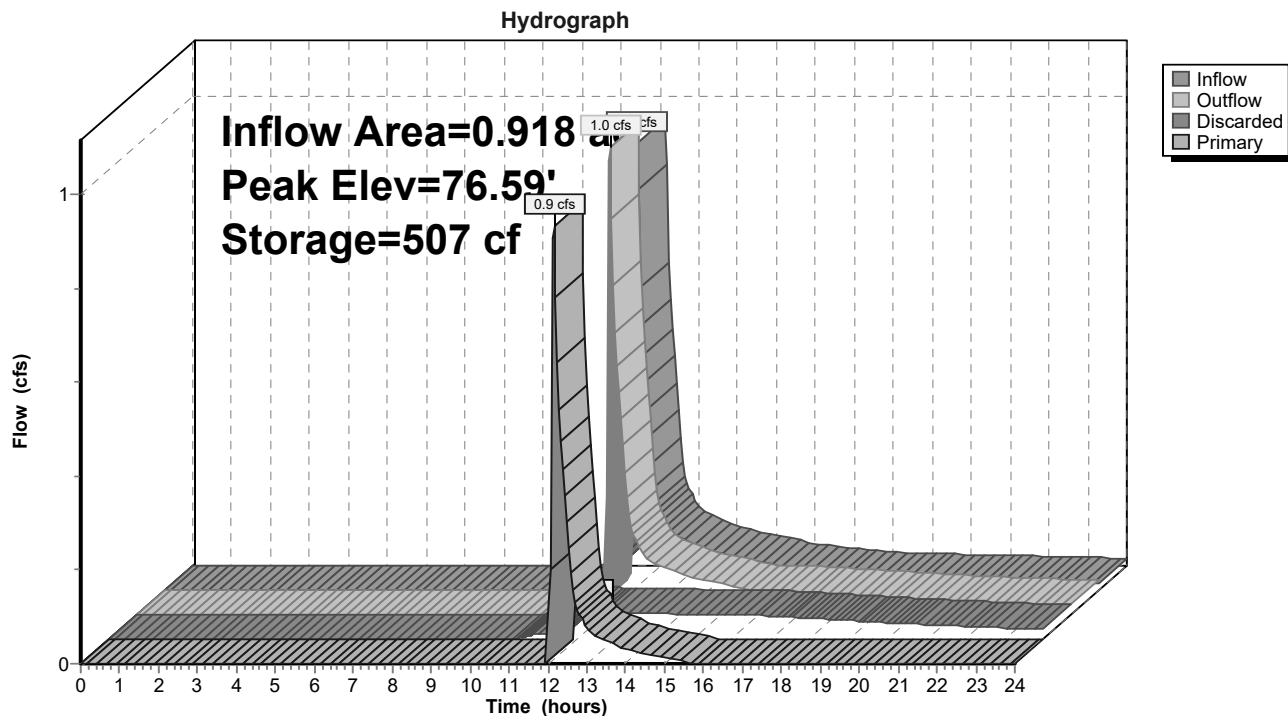
Volume	Invert	Avail.Storage	Storage Description
#1	75.60'	519 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
75.60	172	80.0	0	0	172
76.00	345	115.0	101	101	717
76.60	1,120	212.0	417	519	3,243

Device	Routing	Invert	Outlet Devices
#1	Primary	76.50'	15.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	75.60'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.1 cfs @ 12.17 hrs HW=76.58' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.9 cfs @ 12.17 hrs HW=76.58' (Free Discharge)
 ↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.9 cfs @ 0.7 fps)

Pond EX-D2: Existing Depression-2

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentSC-1: Subcatchment1 Runoff Area=7,364 sf 45.00% Impervious Runoff Depth>2.76"
 Flow Length=52' Slope=0.0200 '/' Tc=6.0 min CN=66 Runoff=0.5 cfs 0.04 af

SubcatchmentSC-2: Subcatchment2 Runoff Area=11,386 sf 15.47% Impervious Runoff Depth>1.05"
 Flow Length=212' Tc=11.4 min CN=46 Runoff=0.2 cfs 0.02 af

SubcatchmentSC-2.1: Subcatchment2.1 Runoff Area=28,605 sf 42.28% Impervious Runoff Depth>3.24"
 Flow Length=225' Tc=8.2 min CN=71 Runoff=2.3 cfs 0.18 af

SubcatchmentSC-3: Subcatchment3 Runoff Area=3,546 sf 0.00% Impervious Runoff Depth>3.85"
 Flow Length=57' Tc=6.0 min CN=77 Runoff=0.4 cfs 0.03 af

Reach DP-1: Design Point 1 Inflow=0.5 cfs 0.04 af
 Outflow=0.5 cfs 0.04 af

Reach DP-2: Design Point 2 Inflow=2.2 cfs 0.11 af
 Outflow=2.2 cfs 0.11 af

Reach DP-3: Design Point 3 Inflow=0.4 cfs 0.03 af
 Outflow=0.4 cfs 0.03 af

Pond EX-D1: Existing Depression-1 Peak Elev=79.98' Storage=301 cf Inflow=0.2 cfs 0.02 af
 Discarded=0.0 cfs 0.02 af Primary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.02 af

Pond EX-D2: Existing Depression-2 Peak Elev=76.66' Storage=519 cf Inflow=2.3 cfs 0.18 af
 Discarded=0.1 cfs 0.06 af Primary=2.2 cfs 0.11 af Outflow=2.3 cfs 0.17 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.27 af Average Runoff Depth = 2.73"
66.27% Pervious = 0.774 ac 33.73% Impervious = 0.394 ac

Summary for Subcatchment SC-1: Subcatchment 1

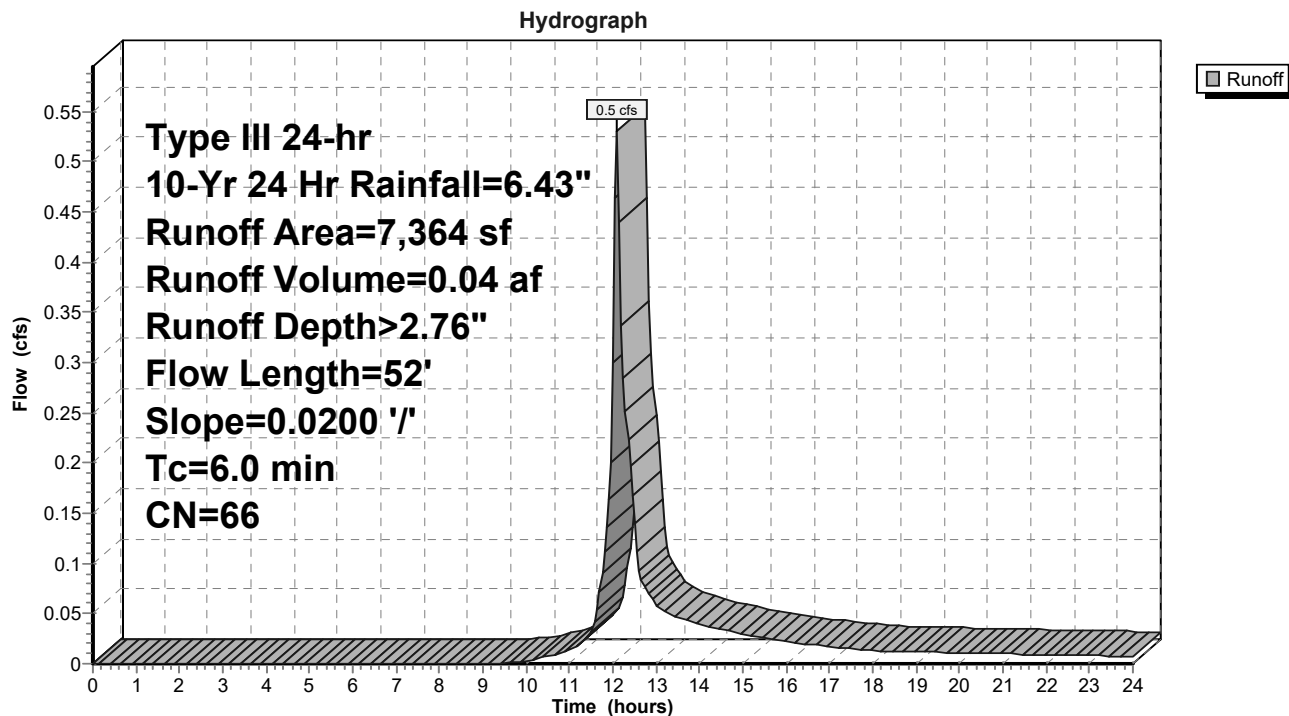
Runoff = 0.5 cfs @ 12.10 hrs, Volume= 0.04 af, Depth> 2.76"
Routed to Reach DP-1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

Area (sf)	CN	Description
3,644	39	>75% Grass cover, Good, HSG A
* 1,684	98	Driveway/Walkways
* 1,412	98	Roof
* 218	98	Roof
406	39	>75% Grass cover, Good, HSG A
7,364	66	Weighted Average
4,050		55.00% Pervious Area
3,314		45.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	24	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
0.4	26	0.0200	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.04"
0.0	2	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8					Direct Entry, Min. Engineering Practice
6.0	52	Total			

Subcatchment SC-1: Subcatchment 1



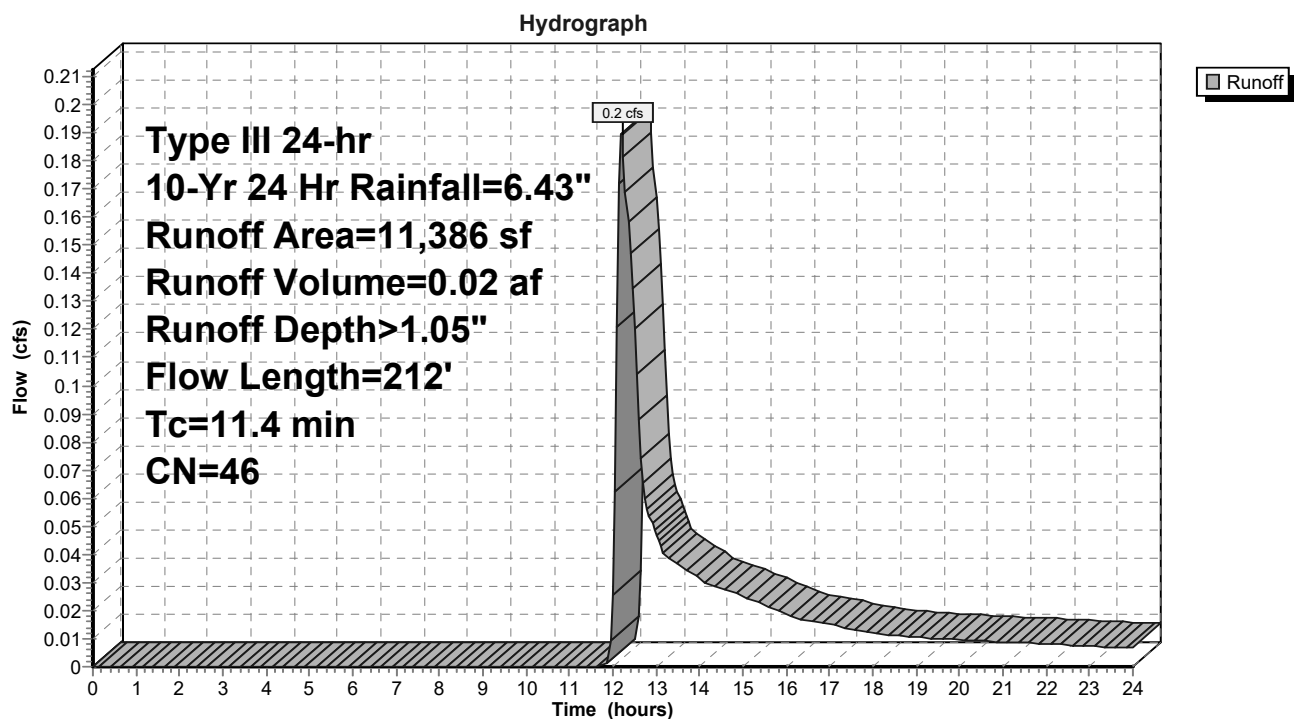
Summary for Subcatchment SC-2: Subcatchment 2

Runoff = 0.2 cfs @ 12.21 hrs, Volume= 0.02 af, Depth> 1.05"
 Routed to Pond EX-D1 : Existing Depression-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

Area (sf)	CN	Description
3,752	39	>75% Grass cover, Good, HSG A
23	77	Woods, Good, HSG D
* 811	98	Driveway/Walkways/Patios
* 735	98	Roof
3,208	30	Woods, Good, HSG A
* 23	98	Bulkheads
* 192	98	Shed
46	96	Gravel surface, HSG A
2,596	39	>75% Grass cover, Good, HSG A
11,386	46	Weighted Average
9,625		84.53% Pervious Area
1,761		15.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	21	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
7.1	29	0.0200	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
0.7	50	0.0600	1.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	76	0.1050	1.6		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.3	36	0.2000	2.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
11.4	212	Total			

Subcatchment SC-2: Subcatchment 2

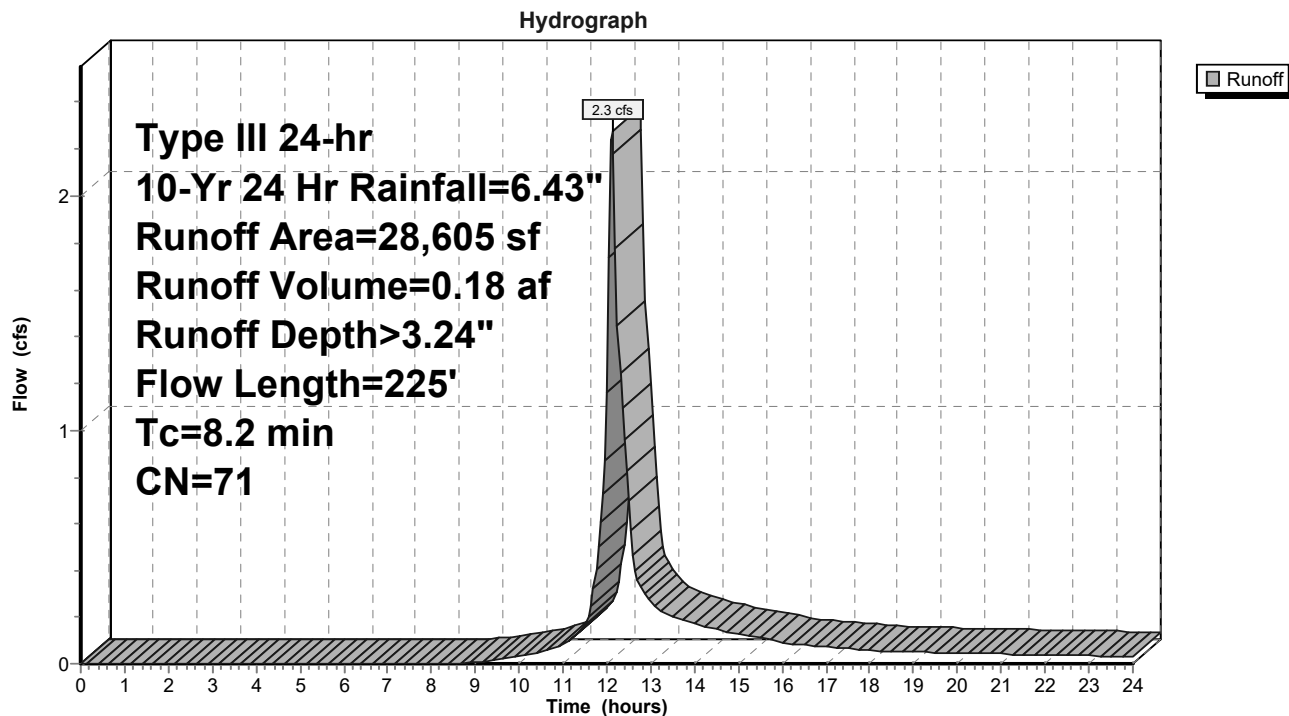
Summary for Subcatchment SC-2.1: Subcatchment 2.1

Runoff = 2.3 cfs @ 12.12 hrs, Volume= 0.18 af, Depth> 3.24"
 Routed to Pond EX-D2 : Existing Depression-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

Area (sf)	CN	Description
0	39	>75% Grass cover, Good, HSG A
76	80	>75% Grass cover, Good, HSG D
5,371	77	Woods, Good, HSG D
* 9,310	98	Driveway/Walkways/Patios
* 2,765	98	Roof
4,626	30	Woods, Good, HSG A
* 20	98	Bulkheads
597	96	Gravel surface, HSG A
5,840	39	>75% Grass cover, Good, HSG A
28,605	71	Weighted Average
16,510		57.72% Pervious Area
12,095		42.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	41	0.0200	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
1.8	9	0.0560	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
1.7	119	0.0560	1.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.4	56	0.2210	2.4		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
8.2	225	Total			

Subcatchment SC-2.1: Subcatchment 2.1

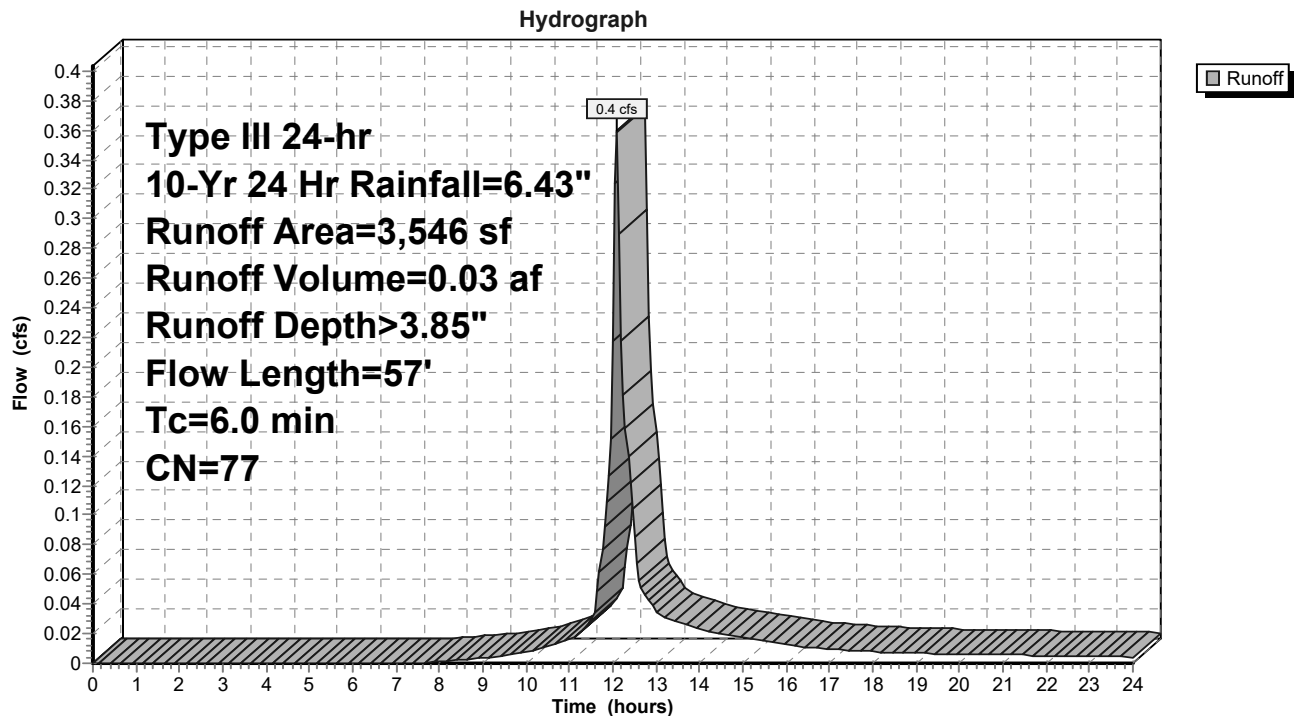
Summary for Subcatchment SC-3: Subcatchment 3

Runoff = 0.4 cfs @ 12.09 hrs, Volume= 0.03 af, Depth> 3.85"
 Routed to Reach DP-3 : Design Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

Area (sf)	CN	Description
3,546	77	Woods, Good, HSG D
3,546		100.00% Pervious Area

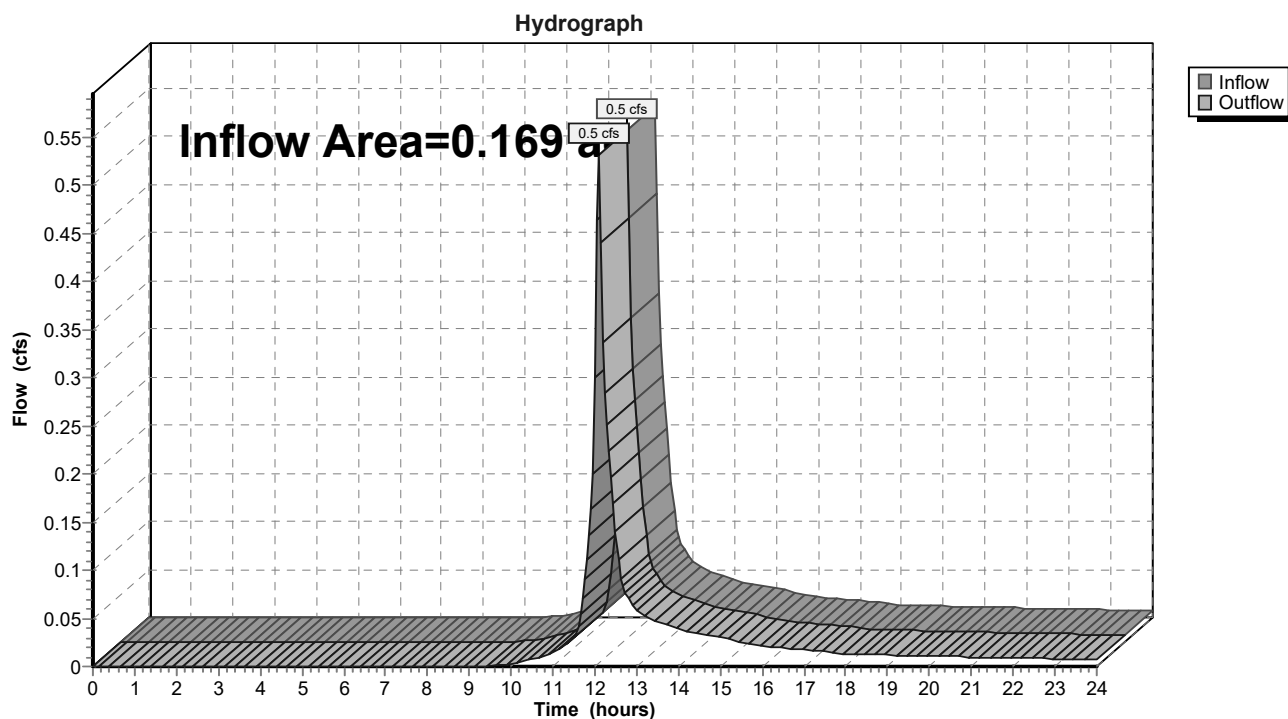
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.1170	0.2		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
0.2	7	0.0200	0.7		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
5.6	57	Total, Increased to minimum Tc = 6.0 min			

Subcatchment SC-3: Subcatchment 3

Summary for Reach DP-1: Design Point 1

Inflow Area = 0.169 ac, 45.00% Impervious, Inflow Depth > 2.76" for 10-Yr 24 Hr event
Inflow = 0.5 cfs @ 12.10 hrs, Volume= 0.04 af
Outflow = 0.5 cfs @ 12.10 hrs, Volume= 0.04 af, Atten= 0%, Lag= 0.0 min

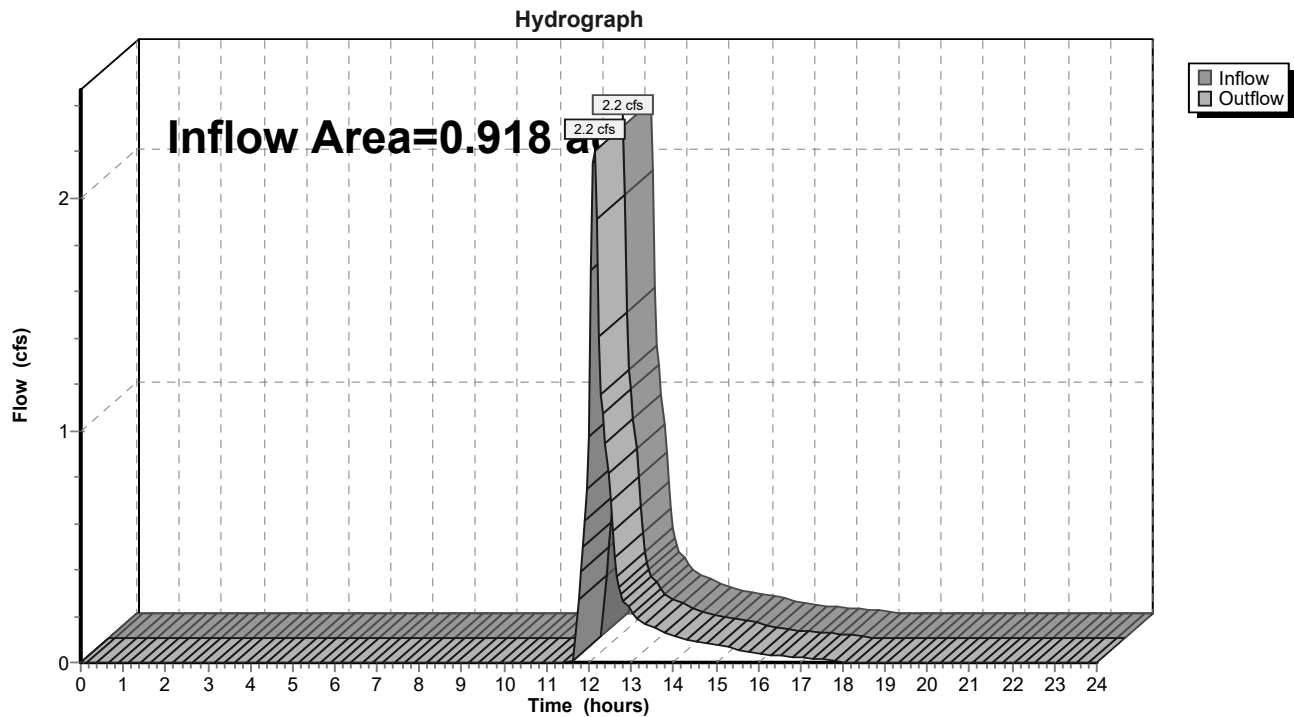
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-1: Design Point 1

Summary for Reach DP-2: Design Point 2

Inflow Area = 0.918 ac, 34.65% Impervious, Inflow Depth = 1.48" for 10-Yr 24 Hr event
Inflow = 2.2 cfs @ 12.12 hrs, Volume= 0.11 af
Outflow = 2.2 cfs @ 12.12 hrs, Volume= 0.11 af, Atten= 0%, Lag= 0.0 min

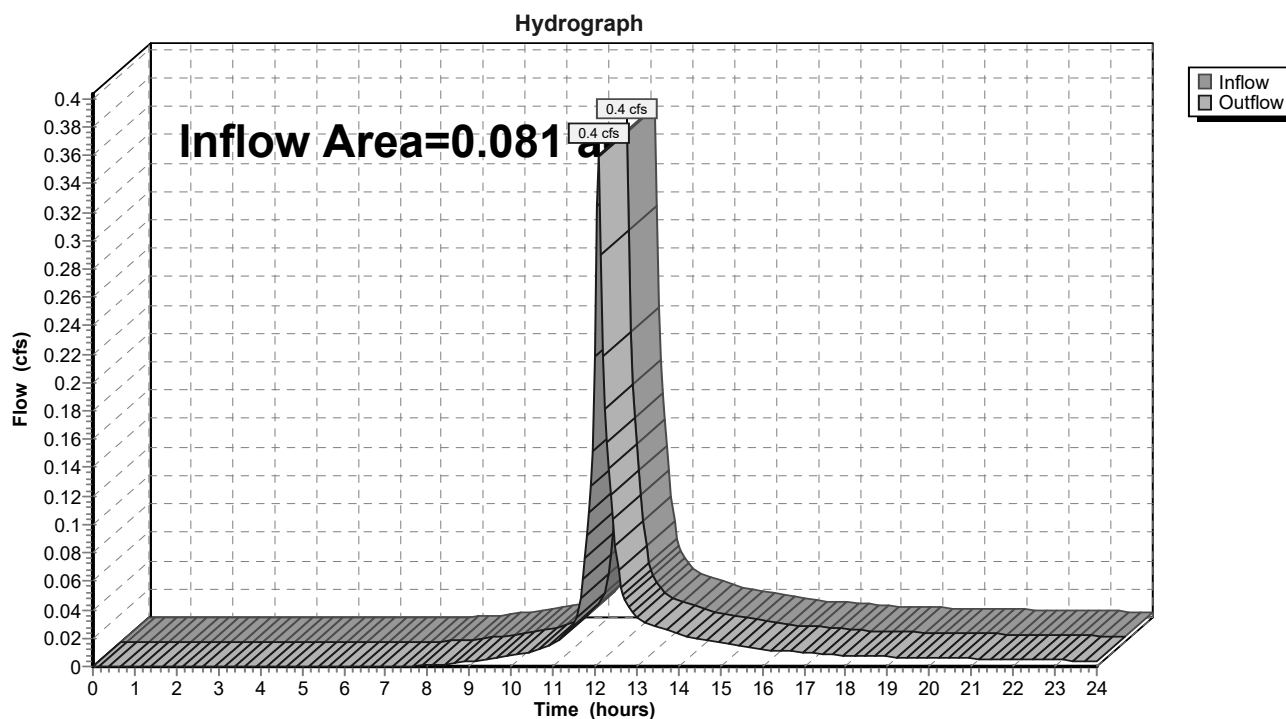
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-2: Design Point 2

Summary for Reach DP-3: Design Point 3

Inflow Area = 0.081 ac, 0.00% Impervious, Inflow Depth > 3.85" for 10-Yr 24 Hr event
Inflow = 0.4 cfs @ 12.09 hrs, Volume= 0.03 af
Outflow = 0.4 cfs @ 12.09 hrs, Volume= 0.03 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-3: Design Point 3

Summary for Pond EX-D1: Existing Depression-1

Inflow Area = 0.261 ac, 15.47% Impervious, Inflow Depth > 1.05" for 10-Yr 24 Hr event
 Inflow = 0.2 cfs @ 12.21 hrs, Volume= 0.02 af
 Outflow = 0.0 cfs @ 13.66 hrs, Volume= 0.02 af, Atten= 81%, Lag= 87.0 min
 Discarded = 0.0 cfs @ 13.66 hrs, Volume= 0.02 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af
 Routed to Pond EX-D2 : Existing Depression-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 79.98' @ 13.66 hrs Surf.Area= 629 sf Storage= 301 cf

Plug-Flow detention time= 118.9 min calculated for 0.02 af (96% of inflow)
 Center-of-Mass det. time= 99.6 min (1,006.6 - 907.0)

Volume	Invert	Avail.Storage	Storage Description		
#1	78.80'	819 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
78.80	32	25.0	0	0	32
79.00	64	46.0	9	9	151
80.00	648	104.0	305	315	847
80.50	1,421	148.0	505	819	1,732

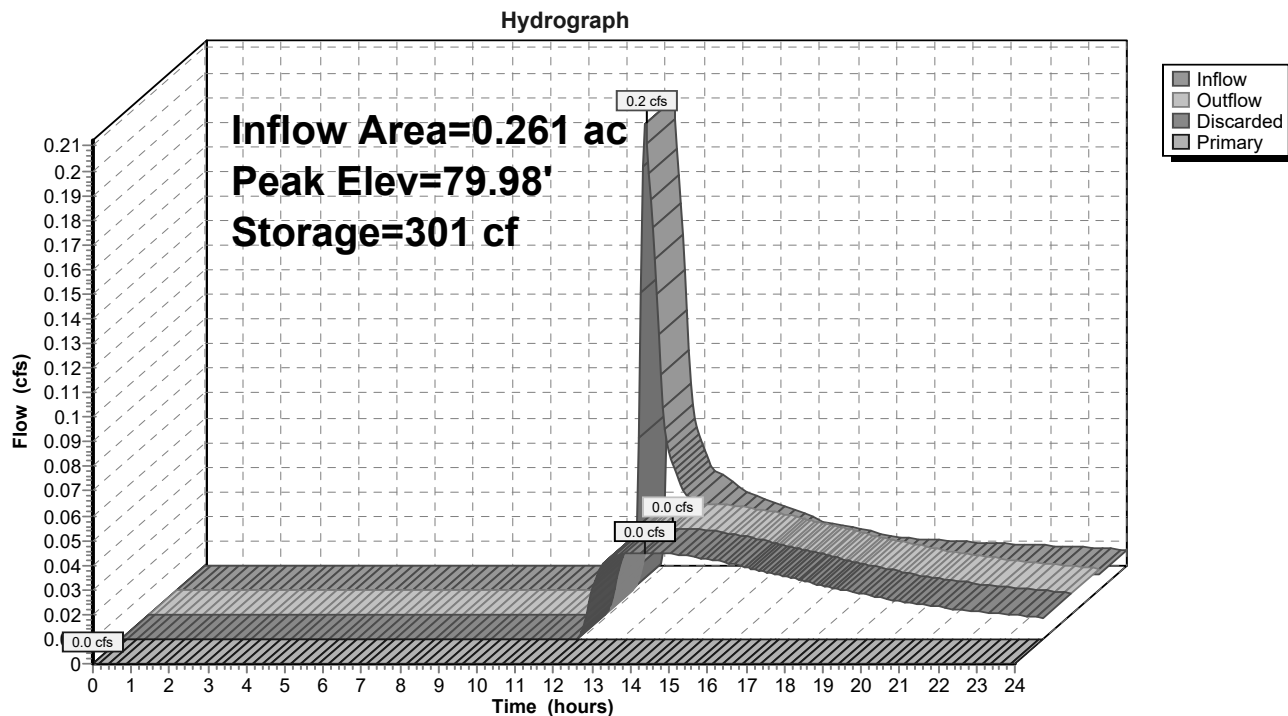
Device	Routing	Invert	Outlet Devices											
#1	Primary	80.10'	20.0' long x 5.0' breadth Broad-Crested Rectangular Weir											
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00											
			2.50 3.00 3.50 4.00 4.50 5.00 5.50											
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65											
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88											
#2	Discarded	78.80'	2.410 in/hr Exfiltration over Surface area											

Discarded OutFlow Max=0.0 cfs @ 13.66 hrs HW=79.98' (Free Discharge)

↑ **2=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=78.80' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond EX-D1: Existing Depression-1

Summary for Pond EX-D2: Existing Depression-2

Inflow Area = 0.918 ac, 34.65% Impervious, Inflow Depth > 2.32" for 10-Yr 24 Hr event
 Inflow = 2.3 cfs @ 12.12 hrs, Volume= 0.18 af
 Outflow = 2.3 cfs @ 12.12 hrs, Volume= 0.17 af, Atten= 1%, Lag= 0.2 min
 Discarded = 0.1 cfs @ 12.05 hrs, Volume= 0.06 af
 Primary = 2.2 cfs @ 12.12 hrs, Volume= 0.11 af
 Routed to Reach DP-2 : Design Point 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 76.66' @ 12.12 hrs Surf.Area= 1,120 sf Storage= 519 cf

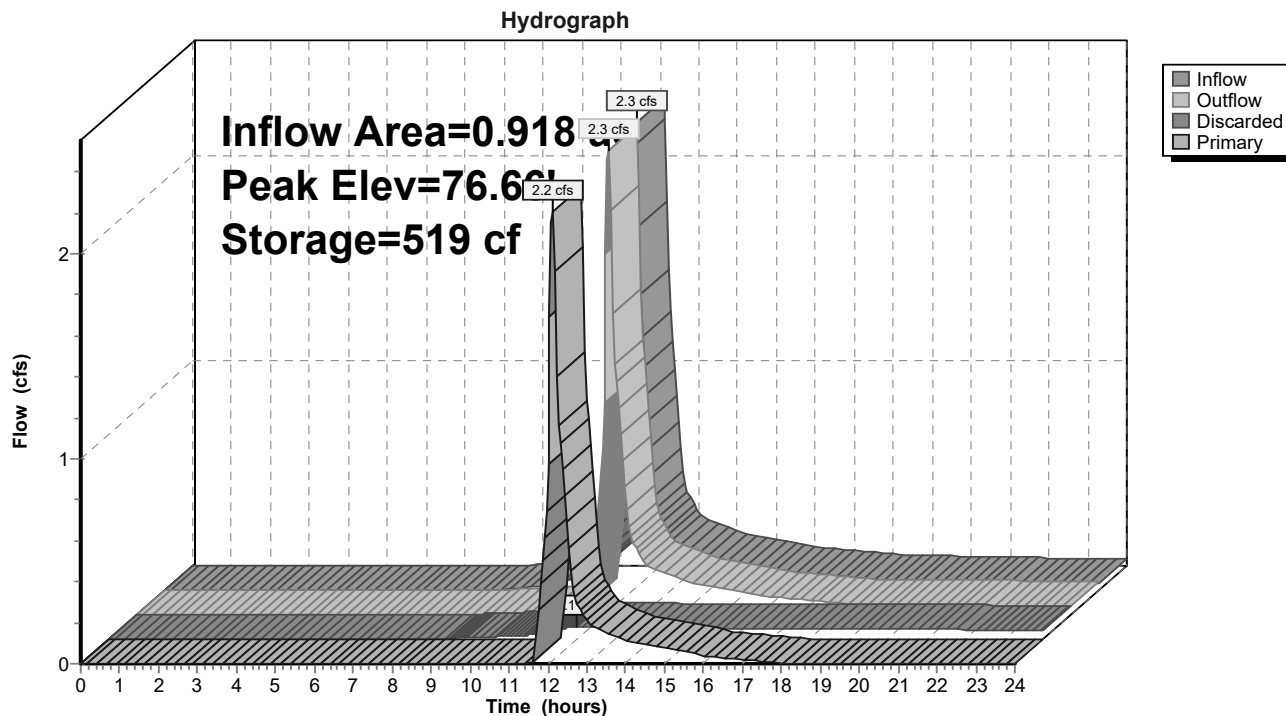
Plug-Flow detention time= 39.5 min calculated for 0.17 af (96% of inflow)
 Center-of-Mass det. time= 19.9 min (853.6 - 833.7)

Volume	Invert	Avail.Storage	Storage Description		
#1	75.60'	519 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
75.60	172	80.0	0	0	172
76.00	345	115.0	101	101	717
76.60	1,120	212.0	417	519	3,243

Device	Routing	Invert	Outlet Devices												
#1	Primary	76.50'	15.0' long x 5.0' breadth Broad-Crested Rectangular Weir												
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00												
			2.50 3.00 3.50 4.00 4.50 5.00 5.50												
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65												
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88												
#2	Discarded	75.60'	2.410 in/hr Exfiltration over Surface area												

Discarded OutFlow Max=0.1 cfs @ 12.05 hrs HW=76.63' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=2.1 cfs @ 12.12 hrs HW=76.66' (Free Discharge)
 ↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 2.1 cfs @ 0.9 fps)

Pond EX-D2: Existing Depression-2

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentSC-1: Subcatchment1 Runoff Area=7,364 sf 45.00% Impervious Runoff Depth>5.42"
 Flow Length=52' Slope=0.0200 '/' Tc=6.0 min CN=66 Runoff=1.1 cfs 0.08 af

SubcatchmentSC-2: Subcatchment2 Runoff Area=11,386 sf 15.47% Impervious Runoff Depth>2.82"
 Flow Length=212' Tc=11.4 min CN=46 Runoff=0.7 cfs 0.06 af

SubcatchmentSC-2.1: Subcatchment2.1 Runoff Area=28,605 sf 42.28% Impervious Runoff Depth>6.07"
 Flow Length=225' Tc=8.2 min CN=71 Runoff=4.3 cfs 0.33 af

SubcatchmentSC-3: Subcatchment3 Runoff Area=3,546 sf 0.00% Impervious Runoff Depth>6.84"
 Flow Length=57' Tc=6.0 min CN=77 Runoff=0.6 cfs 0.05 af

Reach DP-1: Design Point 1 Inflow=1.1 cfs 0.08 af
 Outflow=1.1 cfs 0.08 af

Reach DP-2: Design Point 2 Inflow=4.3 cfs 0.28 af
 Outflow=4.3 cfs 0.28 af

Reach DP-3: Design Point 3 Inflow=0.6 cfs 0.05 af
 Outflow=0.6 cfs 0.05 af

Pond EX-D1: Existing Depression-1 Peak Elev=80.15' Storage=430 cf Inflow=0.7 cfs 0.06 af
 Discarded=0.0 cfs 0.04 af Primary=0.6 cfs 0.02 af Outflow=0.6 cfs 0.06 af

Pond EX-D2: Existing Depression-2 Peak Elev=76.74' Storage=519 cf Inflow=4.3 cfs 0.35 af
 Discarded=0.1 cfs 0.07 af Primary=4.3 cfs 0.28 af Outflow=4.3 cfs 0.35 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.52 af Average Runoff Depth = 5.30"
66.27% Pervious = 0.774 ac 33.73% Impervious = 0.394 ac

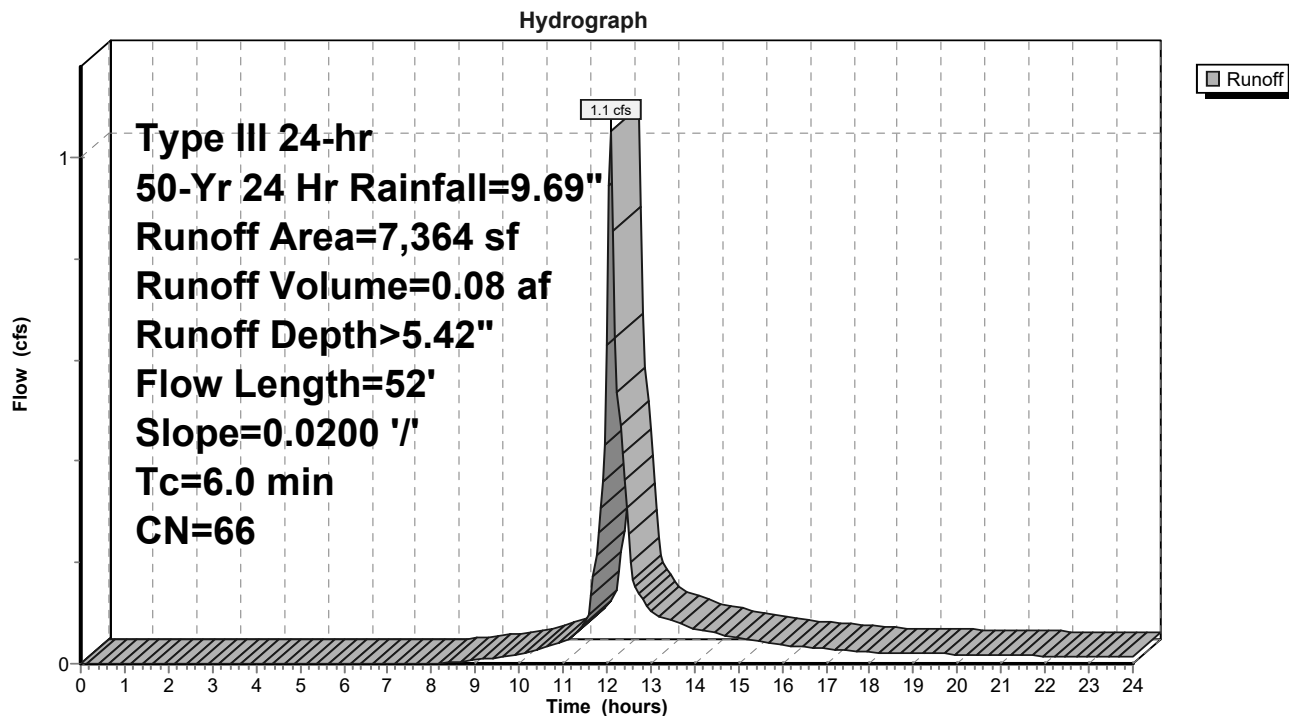
Summary for Subcatchment SC-1: Subcatchment 1

Runoff = 1.1 cfs @ 12.09 hrs, Volume= 0.08 af, Depth> 5.42"
 Routed to Reach DP-1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

Area (sf)	CN	Description
3,644	39	>75% Grass cover, Good, HSG A
* 1,684	98	Driveway/Walkways
* 1,412	98	Roof
* 218	98	Roof
406	39	>75% Grass cover, Good, HSG A
7,364	66	Weighted Average
4,050		55.00% Pervious Area
3,314		45.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	24	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
0.4	26	0.0200	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.04"
0.0	2	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8					Direct Entry, Min. Engineering Practice
6.0	52	Total			

Subcatchment SC-1: Subcatchment 1

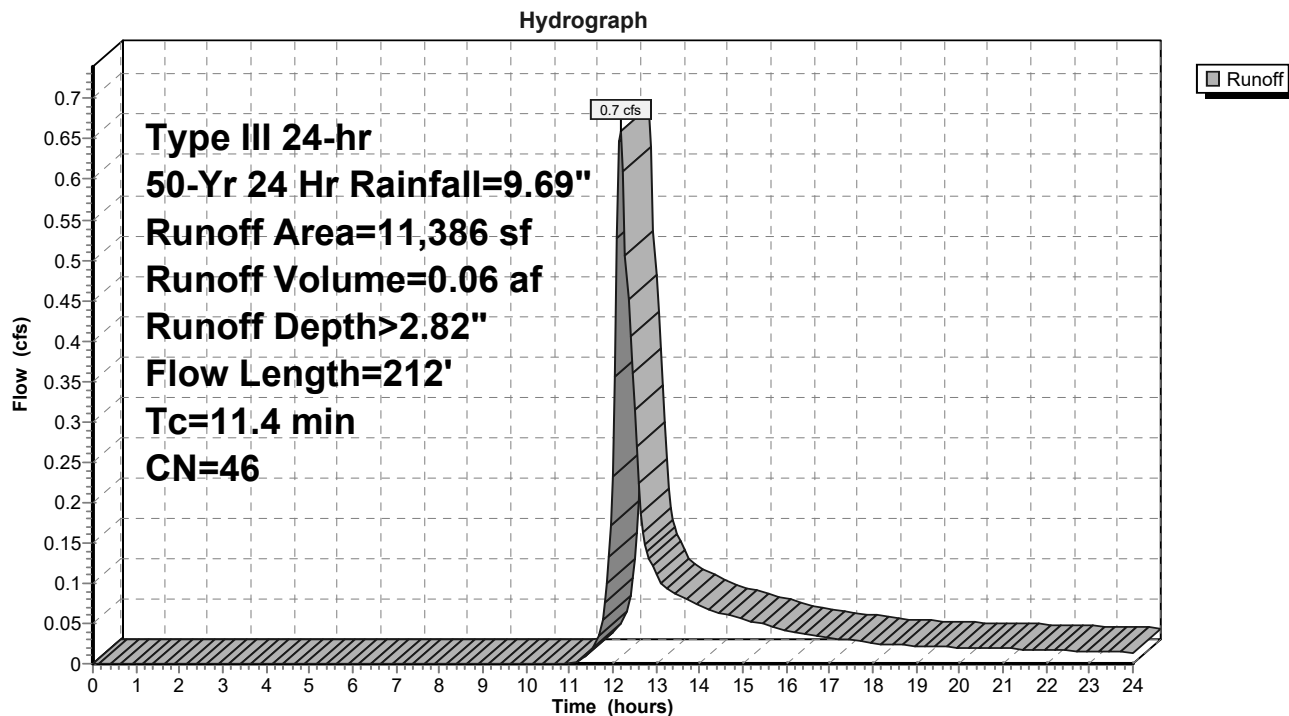
Summary for Subcatchment SC-2: Subcatchment 2

Runoff = 0.7 cfs @ 12.17 hrs, Volume= 0.06 af, Depth> 2.82"
 Routed to Pond EX-D1 : Existing Depression-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

Area (sf)	CN	Description
3,752	39	>75% Grass cover, Good, HSG A
23	77	Woods, Good, HSG D
* 811	98	Driveway/Walkways/Patios
* 735	98	Roof
3,208	30	Woods, Good, HSG A
* 23	98	Bulkheads
* 192	98	Shed
46	96	Gravel surface, HSG A
2,596	39	>75% Grass cover, Good, HSG A
11,386	46	Weighted Average
9,625		84.53% Pervious Area
1,761		15.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	21	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
7.1	29	0.0200	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
0.7	50	0.0600	1.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	76	0.1050	1.6		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.3	36	0.2000	2.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
11.4	212	Total			

Subcatchment SC-2: Subcatchment 2

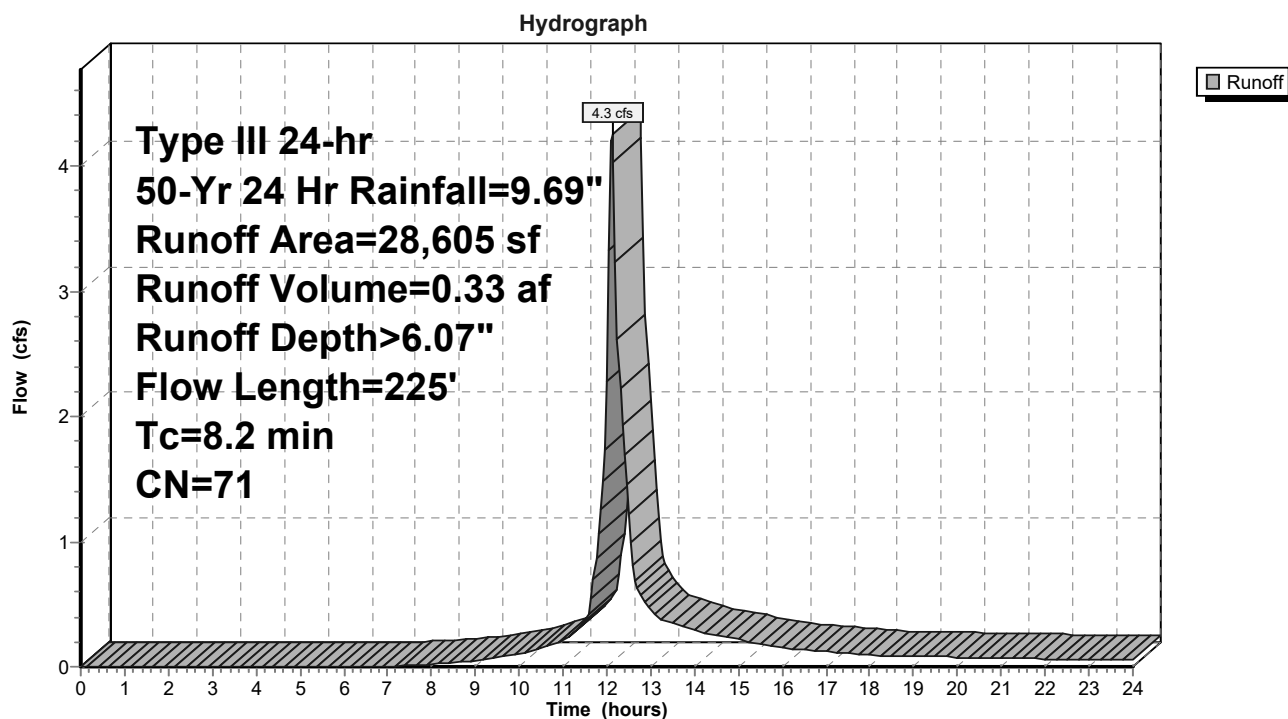
Summary for Subcatchment SC-2.1: Subcatchment 2.1

Runoff = 4.3 cfs @ 12.12 hrs, Volume= 0.33 af, Depth> 6.07"
 Routed to Pond EX-D2 : Existing Depression-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

Area (sf)	CN	Description
0	39	>75% Grass cover, Good, HSG A
76	80	>75% Grass cover, Good, HSG D
5,371	77	Woods, Good, HSG D
* 9,310	98	Driveway/Walkways/Patios
* 2,765	98	Roof
4,626	30	Woods, Good, HSG A
* 20	98	Bulkheads
597	96	Gravel surface, HSG A
5,840	39	>75% Grass cover, Good, HSG A
28,605	71	Weighted Average
16,510		57.72% Pervious Area
12,095		42.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	41	0.0200	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
1.8	9	0.0560	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
1.7	119	0.0560	1.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.4	56	0.2210	2.4		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
8.2	225	Total			

Subcatchment SC-2.1: Subcatchment 2.1

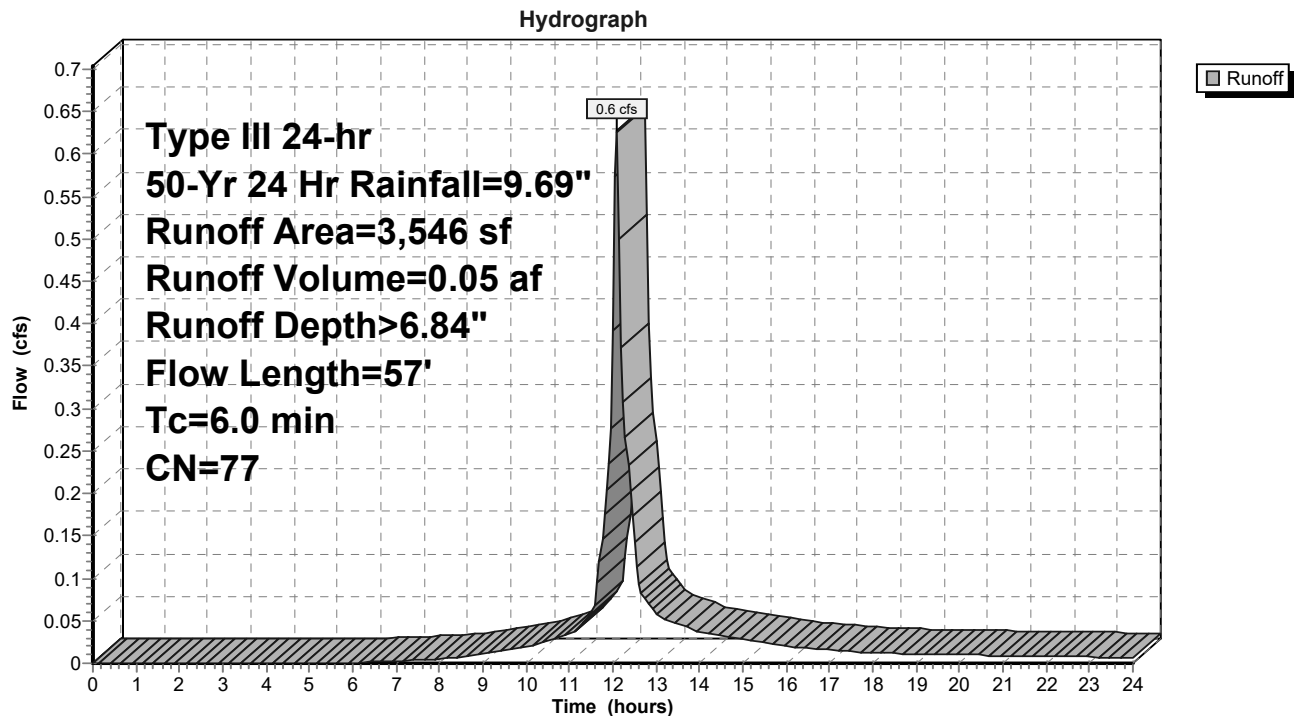
Summary for Subcatchment SC-3: Subcatchment 3

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 0.05 af, Depth> 6.84"
 Routed to Reach DP-3 : Design Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

Area (sf)	CN	Description
3,546	77	Woods, Good, HSG D
3,546		100.00% Pervious Area

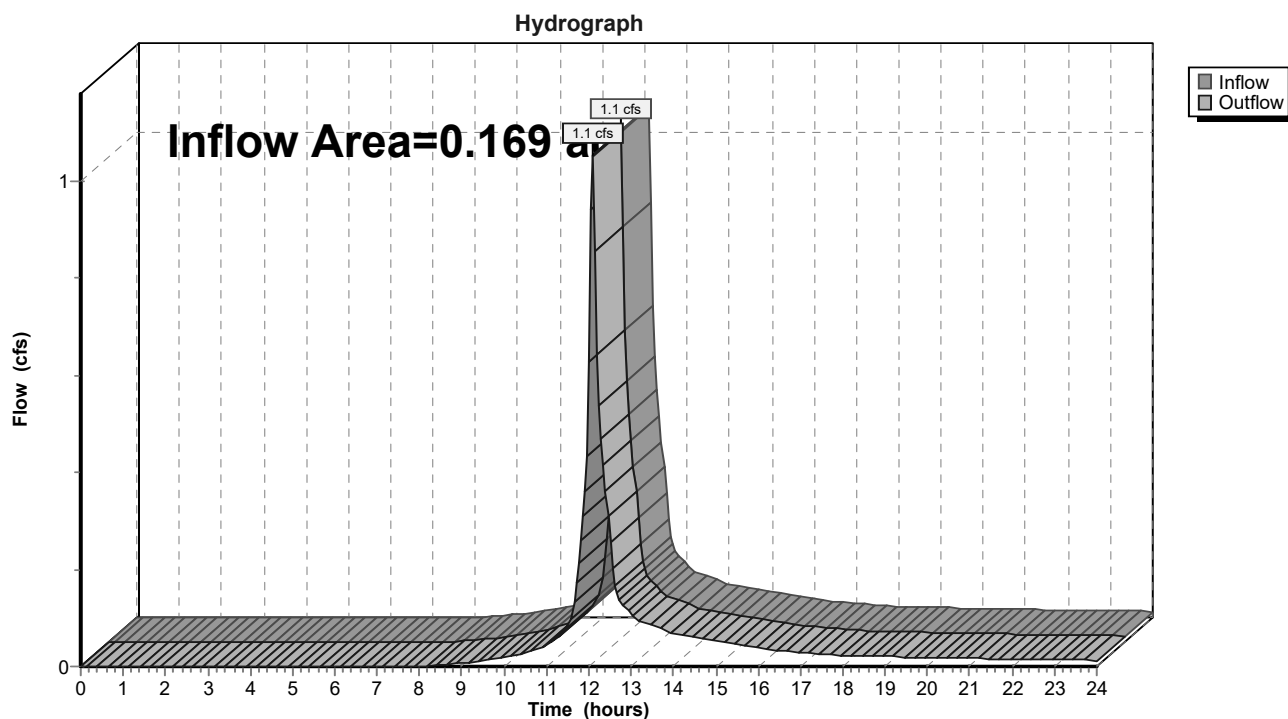
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.1170	0.2		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
0.2	7	0.0200	0.7		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
5.6	57	Total, Increased to minimum Tc = 6.0 min			

Subcatchment SC-3: Subcatchment 3

Summary for Reach DP-1: Design Point 1

Inflow Area = 0.169 ac, 45.00% Impervious, Inflow Depth > 5.42" for 50-Yr 24 Hr event
Inflow = 1.1 cfs @ 12.09 hrs, Volume= 0.08 af
Outflow = 1.1 cfs @ 12.09 hrs, Volume= 0.08 af, Atten= 0%, Lag= 0.0 min

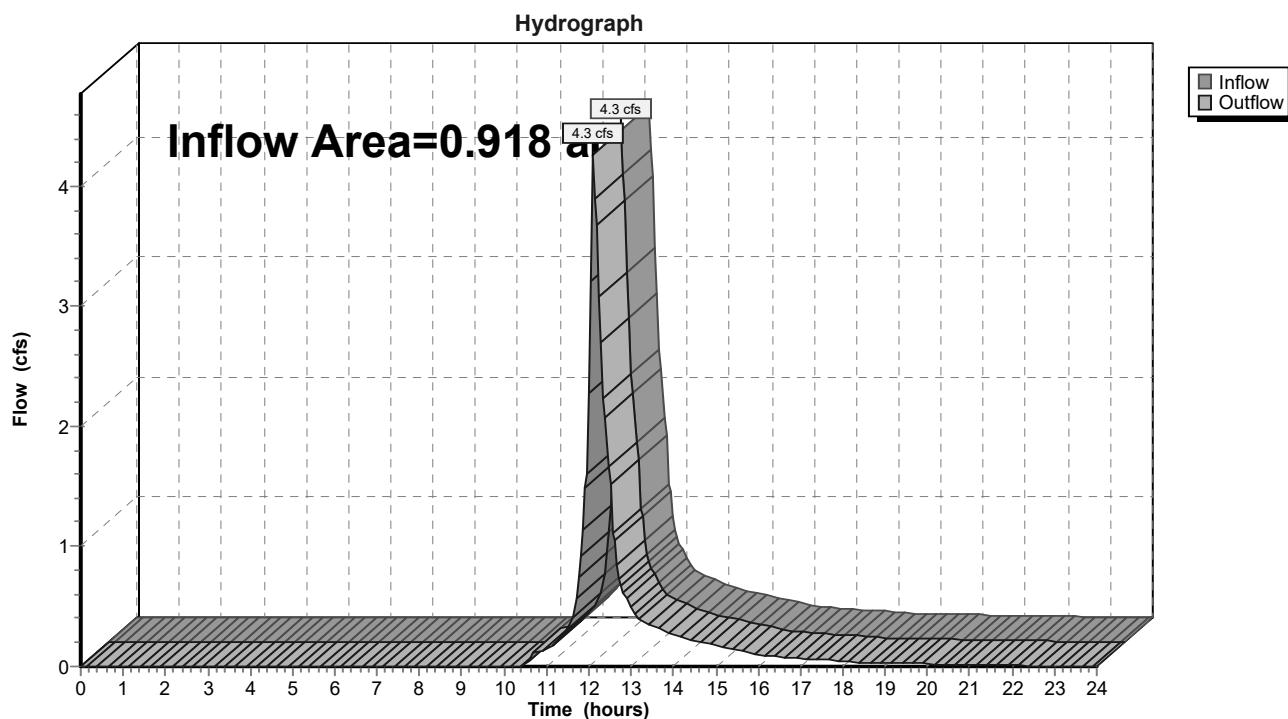
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-1: Design Point 1

Summary for Reach DP-2: Design Point 2

Inflow Area = 0.918 ac, 34.65% Impervious, Inflow Depth = 3.63" for 50-Yr 24 Hr event
Inflow = 4.3 cfs @ 12.11 hrs, Volume= 0.28 af
Outflow = 4.3 cfs @ 12.11 hrs, Volume= 0.28 af, Atten= 0%, Lag= 0.0 min

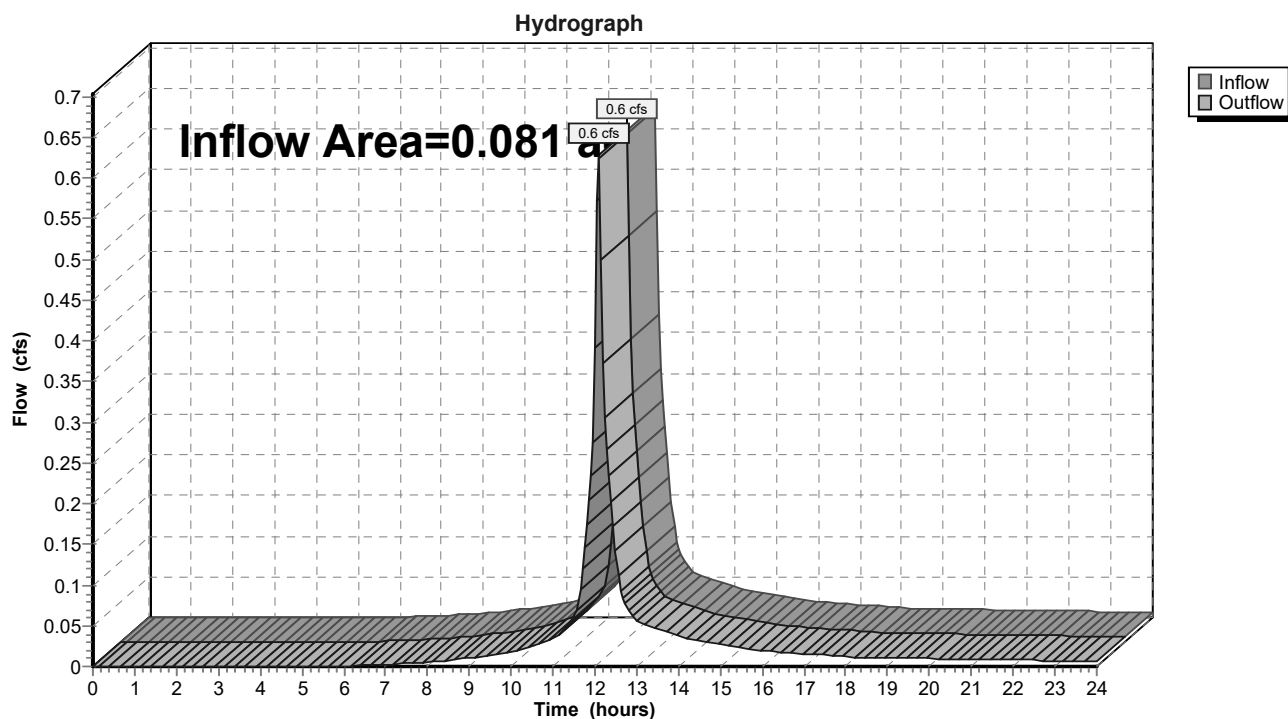
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-2: Design Point 2

Summary for Reach DP-3: Design Point 3

Inflow Area = 0.081 ac, 0.00% Impervious, Inflow Depth > 6.84" for 50-Yr 24 Hr event
Inflow = 0.6 cfs @ 12.09 hrs, Volume= 0.05 af
Outflow = 0.6 cfs @ 12.09 hrs, Volume= 0.05 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-3: Design Point 3

Summary for Pond EX-D1: Existing Depression-1

Inflow Area = 0.261 ac, 15.47% Impervious, Inflow Depth > 2.82" for 50-Yr 24 Hr event
 Inflow = 0.7 cfs @ 12.17 hrs, Volume= 0.06 af
 Outflow = 0.6 cfs @ 12.25 hrs, Volume= 0.06 af, Atten= 3%, Lag= 4.7 min
 Discarded = 0.0 cfs @ 12.25 hrs, Volume= 0.04 af
 Primary = 0.6 cfs @ 12.25 hrs, Volume= 0.02 af
 Routed to Pond EX-D2 : Existing Depression-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 80.15' @ 12.25 hrs Surf.Area= 855 sf Storage= 430 cf

Plug-Flow detention time= 81.0 min calculated for 0.06 af (95% of inflow)
 Center-of-Mass det. time= 55.8 min (927.7 - 872.0)

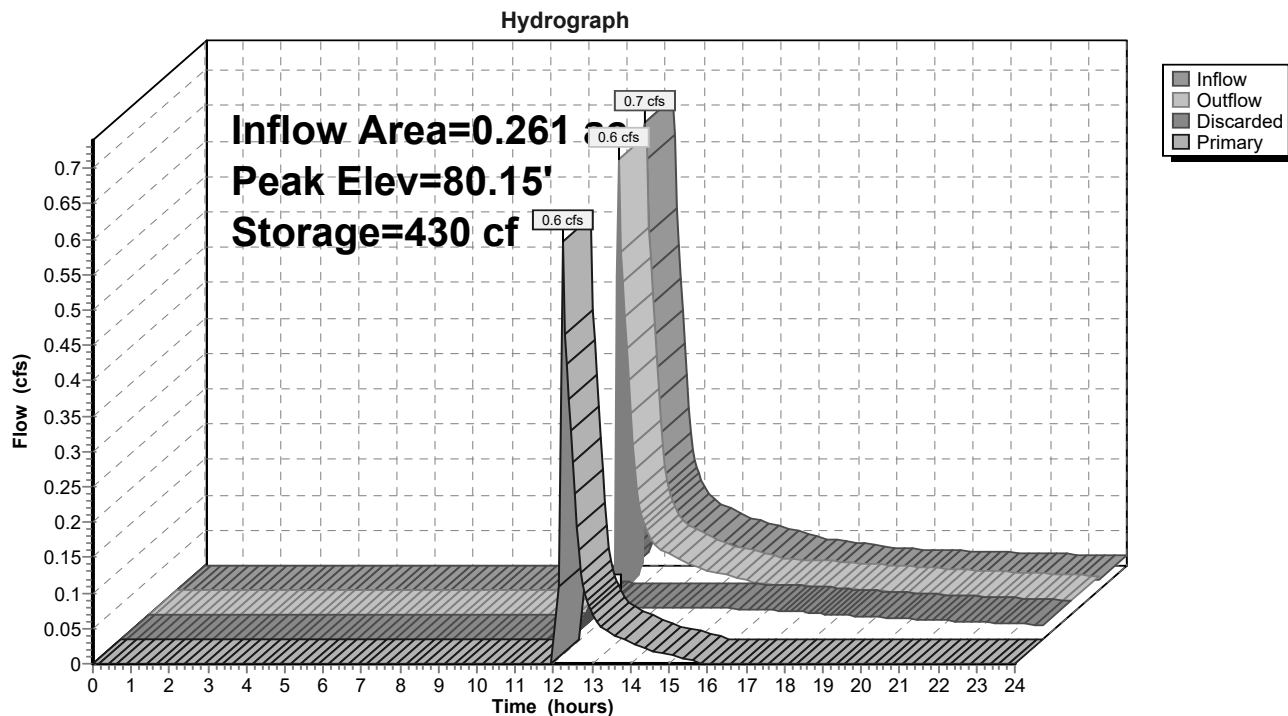
Volume	Invert	Avail.Storage	Storage Description
#1	78.80'	819 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
78.80	32	25.0	0	0	32
79.00	64	46.0	9	9	151
80.00	648	104.0	305	315	847
80.50	1,421	148.0	505	819	1,732

Device	Routing	Invert	Outlet Devices
#1	Primary	80.10'	20.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	78.80'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.0 cfs @ 12.25 hrs HW=80.15' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.6 cfs @ 12.25 hrs HW=80.15' (Free Discharge)
 ↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.6 cfs @ 0.5 fps)

Pond EX-D1: Existing Depression-1

Summary for Pond EX-D2: Existing Depression-2

Inflow Area = 0.918 ac, 34.65% Impervious, Inflow Depth > 4.64" for 50-Yr 24 Hr event
 Inflow = 4.3 cfs @ 12.12 hrs, Volume= 0.35 af
 Outflow = 4.3 cfs @ 12.11 hrs, Volume= 0.35 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.1 cfs @ 11.85 hrs, Volume= 0.07 af
 Primary = 4.3 cfs @ 12.11 hrs, Volume= 0.28 af
 Routed to Reach DP-2 : Design Point 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 76.74' @ 12.11 hrs Surf.Area= 1,120 sf Storage= 519 cf

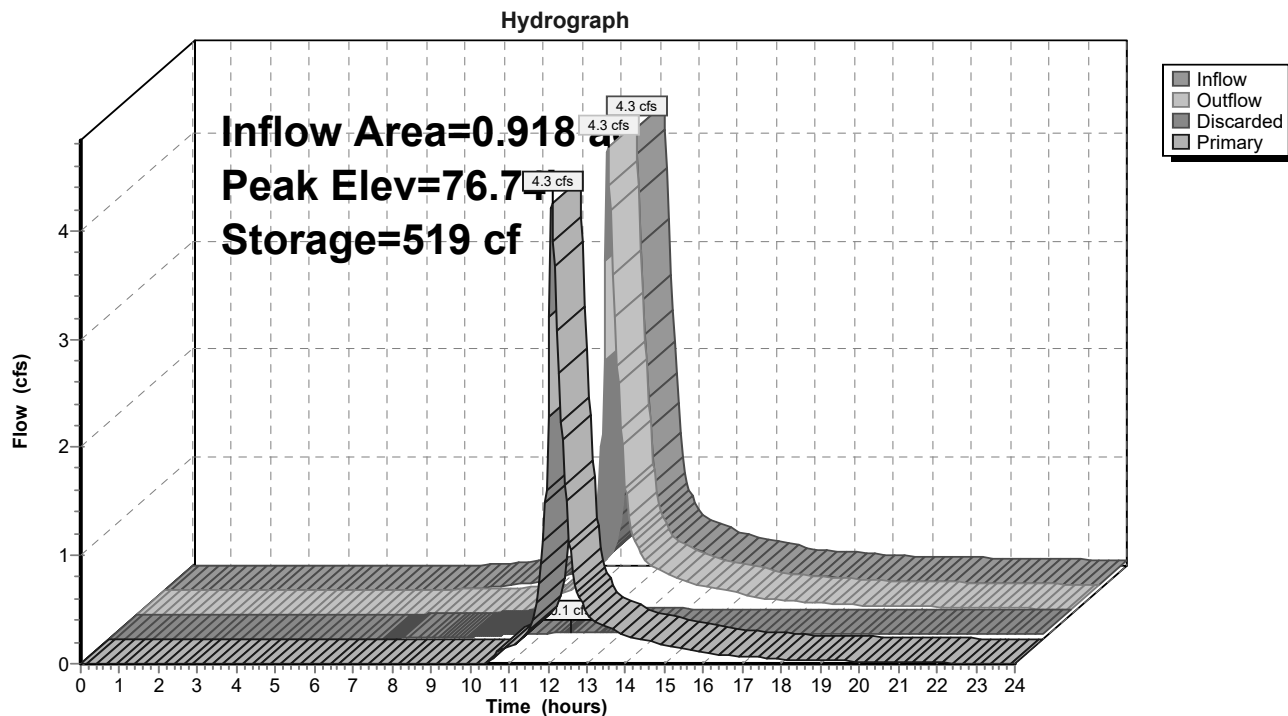
Plug-Flow detention time= 23.1 min calculated for 0.34 af (97% of inflow)
 Center-of-Mass det. time= 7.9 min (820.7 - 812.8)

Volume	Invert	Avail.Storage	Storage Description		
#1	75.60'	519 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
75.60	172	80.0	0	0	172
76.00	345	115.0	101	101	717
76.60	1,120	212.0	417	519	3,243

Device	Routing	Invert	Outlet Devices												
#1	Primary	76.50'	15.0' long x 5.0' breadth Broad-Crested Rectangular Weir												
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00												
			2.50 3.00 3.50 4.00 4.50 5.00 5.50												
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65												
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88												
#2	Discarded	75.60'	2.410 in/hr Exfiltration over Surface area												

Discarded OutFlow Max=0.1 cfs @ 11.85 hrs HW=76.60' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=4.1 cfs @ 12.11 hrs HW=76.74' (Free Discharge)
 ↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 4.1 cfs @ 1.2 fps)

Pond EX-D2: Existing Depression-2

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentSC-1: Subcatchment1 Runoff Area=7,364 sf 45.00% Impervious Runoff Depth>7.01"
 Flow Length=52' Slope=0.0200 '/' Tc=6.0 min CN=66 Runoff=1.4 cfs 0.10 af

SubcatchmentSC-2: Subcatchment2 Runoff Area=11,386 sf 15.47% Impervious Runoff Depth>4.00"
 Flow Length=212' Tc=11.4 min CN=46 Runoff=1.0 cfs 0.09 af

SubcatchmentSC-2.1: Subcatchment2.1 Runoff Area=28,605 sf 42.28% Impervious Runoff Depth>7.72"
 Flow Length=225' Tc=8.2 min CN=71 Runoff=5.4 cfs 0.42 af

SubcatchmentSC-3: Subcatchment3 Runoff Area=3,546 sf 0.00% Impervious Runoff Depth>8.55"
 Flow Length=57' Tc=6.0 min CN=77 Runoff=0.8 cfs 0.06 af

Reach DP-1: Design Point 1 Inflow=1.4 cfs 0.10 af
 Outflow=1.4 cfs 0.10 af

Reach DP-2: Design Point 2 Inflow=6.0 cfs 0.38 af
 Outflow=6.0 cfs 0.38 af

Reach DP-3: Design Point 3 Inflow=0.8 cfs 0.06 af
 Outflow=0.8 cfs 0.06 af

Pond EX-D1: Existing Depression-1 Peak Elev=80.18' Storage=450 cf Inflow=1.0 cfs 0.09 af
 Discarded=0.0 cfs 0.04 af Primary=1.0 cfs 0.04 af Outflow=1.0 cfs 0.08 af

Pond EX-D2: Existing Depression-2 Peak Elev=76.80' Storage=519 cf Inflow=6.1 cfs 0.47 af
 Discarded=0.1 cfs 0.07 af Primary=6.0 cfs 0.38 af Outflow=6.1 cfs 0.46 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.67 af Average Runoff Depth = 6.84"
66.27% Pervious = 0.774 ac 33.73% Impervious = 0.394 ac

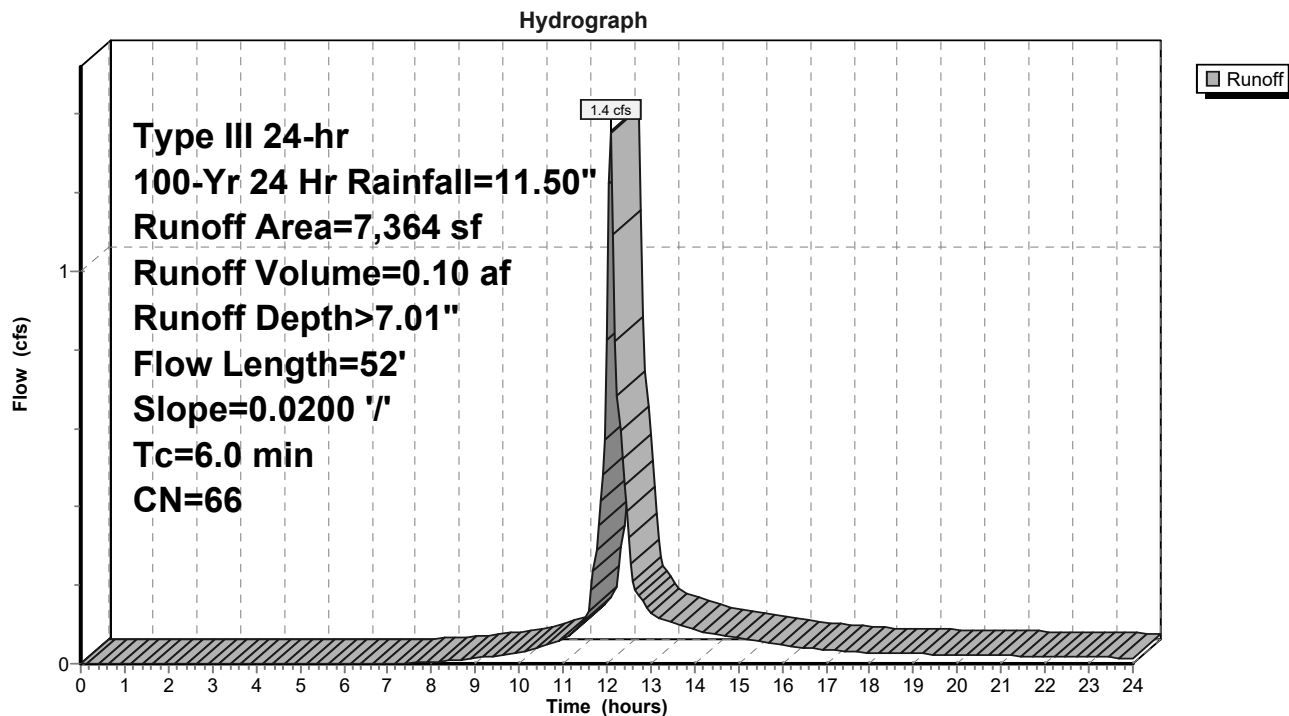
Summary for Subcatchment SC-1: Subcatchment 1

Runoff = 1.4 cfs @ 12.09 hrs, Volume= 0.10 af, Depth> 7.01"
 Routed to Reach DP-1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

	Area (sf)	CN	Description
	3,644	39	>75% Grass cover, Good, HSG A
*	1,684	98	Driveway/Walkways
*	1,412	98	Roof
*	218	98	Roof
	406	39	>75% Grass cover, Good, HSG A
	7,364	66	Weighted Average
	4,050		55.00% Pervious Area
	3,314		45.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	24	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
0.4	26	0.0200	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.04"
0.0	2	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.8					Direct Entry, Min. Engineering Practice
6.0	52	Total			

Subcatchment SC-1: Subcatchment 1

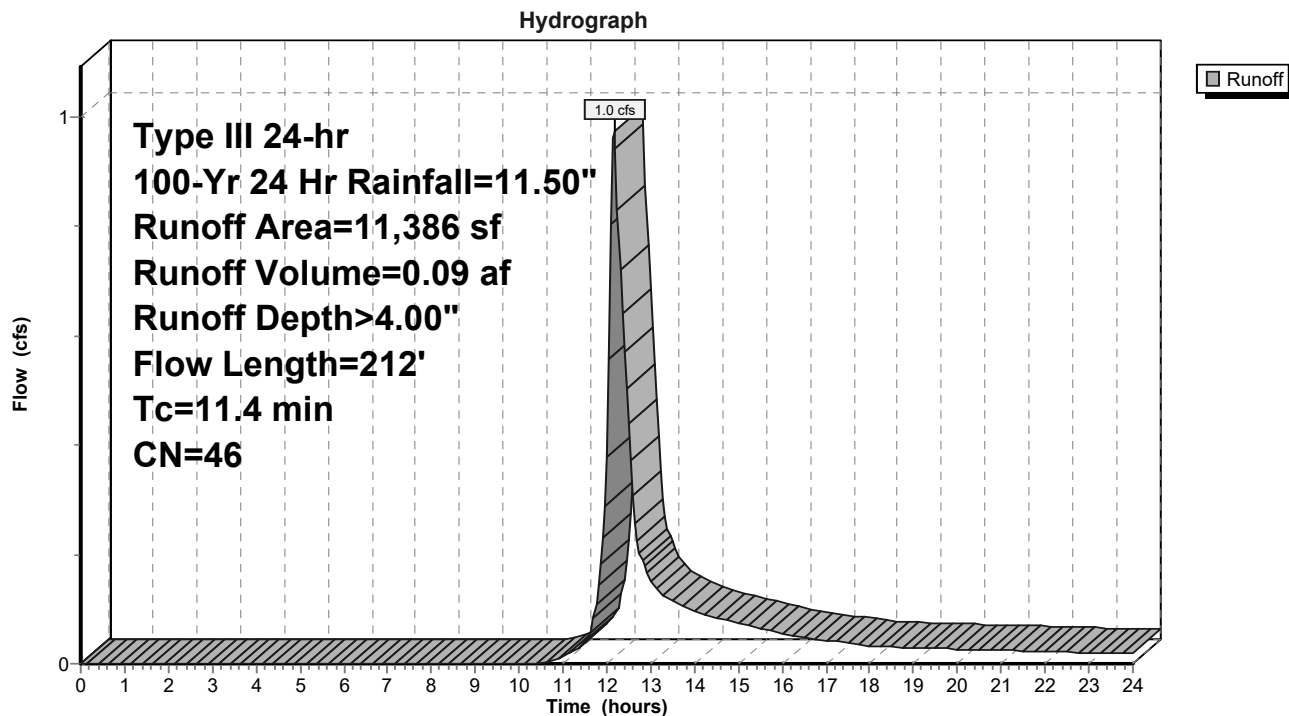
Summary for Subcatchment SC-2: Subcatchment 2

Runoff = 1.0 cfs @ 12.17 hrs, Volume= 0.09 af, Depth> 4.00"
 Routed to Pond EX-D1 : Existing Depression-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

Area (sf)	CN	Description
3,752	39	>75% Grass cover, Good, HSG A
23	77	Woods, Good, HSG D
* 811	98	Driveway/Walkways/Patios
* 735	98	Roof
3,208	30	Woods, Good, HSG A
* 23	98	Bulkheads
* 192	98	Shed
46	96	Gravel surface, HSG A
2,596	39	>75% Grass cover, Good, HSG A
11,386	46	Weighted Average
9,625		84.53% Pervious Area
1,761		15.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	21	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
7.1	29	0.0200	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
0.7	50	0.0600	1.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.8	76	0.1050	1.6		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.3	36	0.2000	2.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
11.4	212	Total			

Subcatchment SC-2: Subcatchment 2

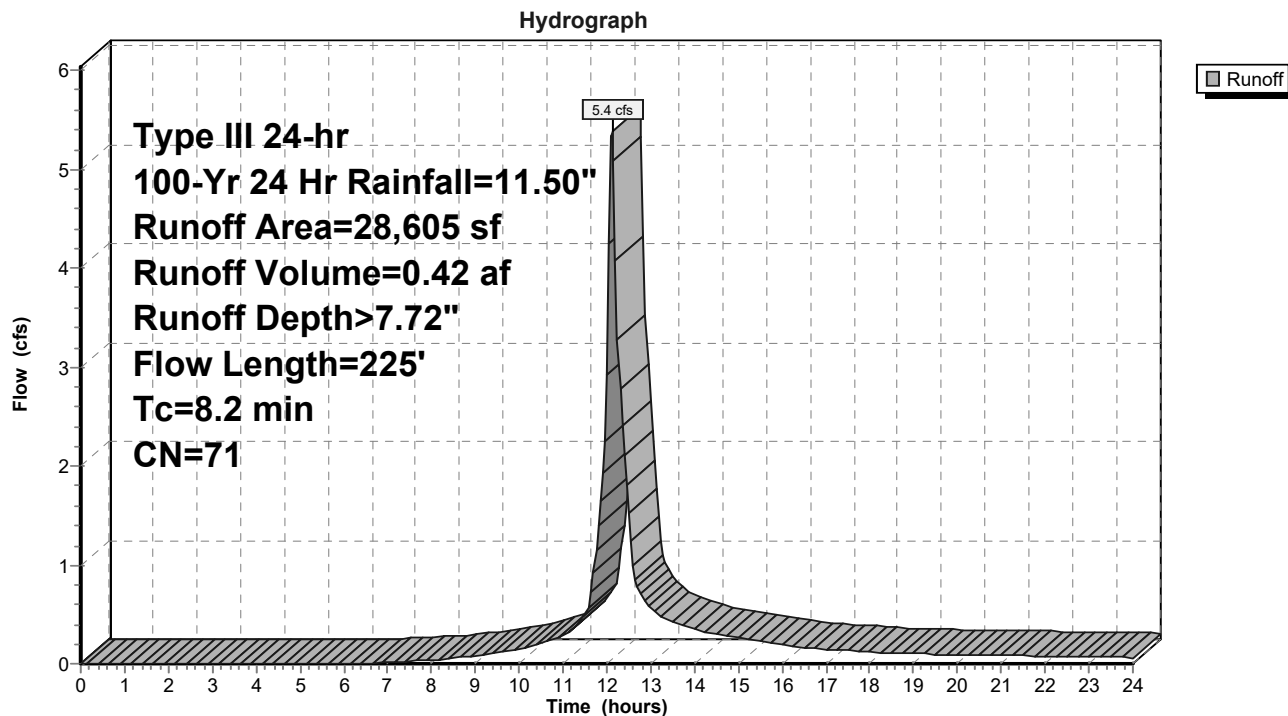
Summary for Subcatchment SC-2.1: Subcatchment 2.1

Runoff = 5.4 cfs @ 12.12 hrs, Volume= 0.42 af, Depth> 7.72"
 Routed to Pond EX-D2 : Existing Depression-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

Area (sf)	CN	Description
0	39	>75% Grass cover, Good, HSG A
76	80	>75% Grass cover, Good, HSG D
5,371	77	Woods, Good, HSG D
* 9,310	98	Driveway/Walkways/Patios
* 2,765	98	Roof
4,626	30	Woods, Good, HSG A
* 20	98	Bulkheads
597	96	Gravel surface, HSG A
5,840	39	>75% Grass cover, Good, HSG A
28,605	71	Weighted Average
16,510		57.72% Pervious Area
12,095		42.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	41	0.0200	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 4.04"
1.8	9	0.0560	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
1.7	119	0.0560	1.2		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.4	56	0.2210	2.4		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
8.2	225	Total			

Subcatchment SC-2.1: Subcatchment 2.1

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Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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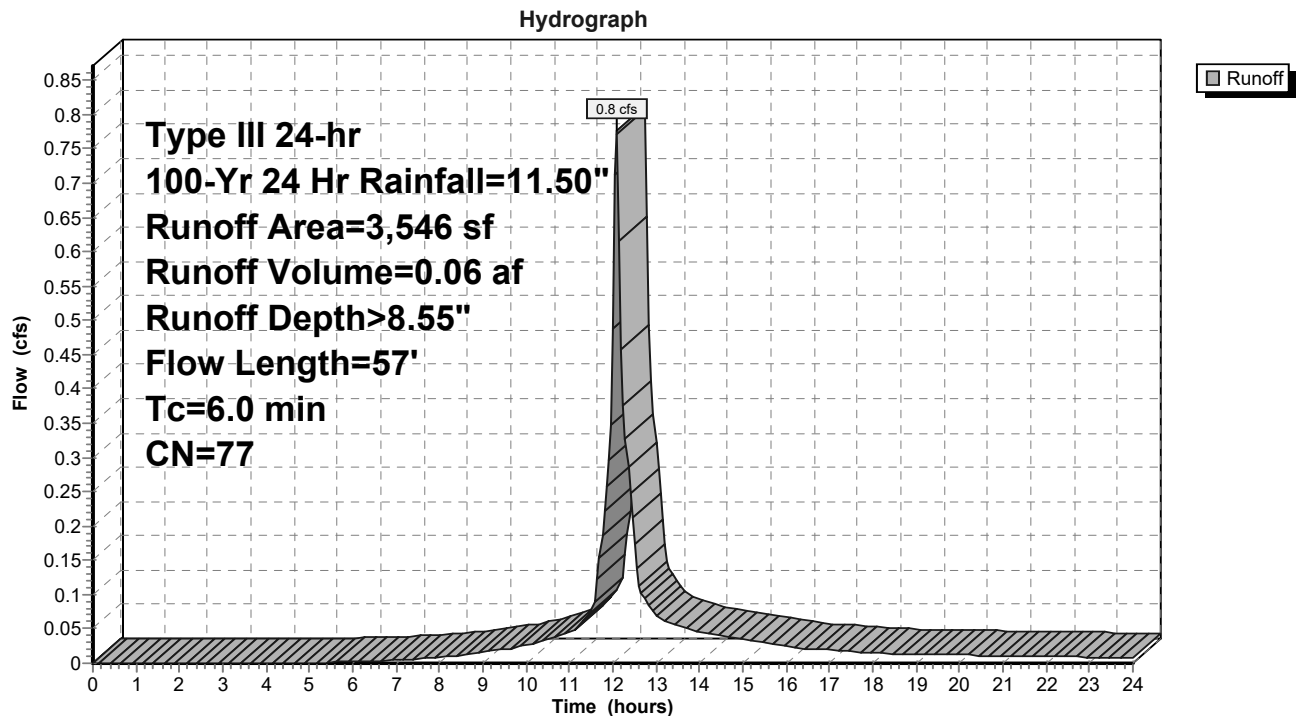
Summary for Subcatchment SC-3: Subcatchment 3

Runoff = 0.8 cfs @ 12.09 hrs, Volume= 0.06 af, Depth> 8.55"
 Routed to Reach DP-3 : Design Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

Area (sf)	CN	Description
3,546	77	Woods, Good, HSG D
3,546		100.00% Pervious Area

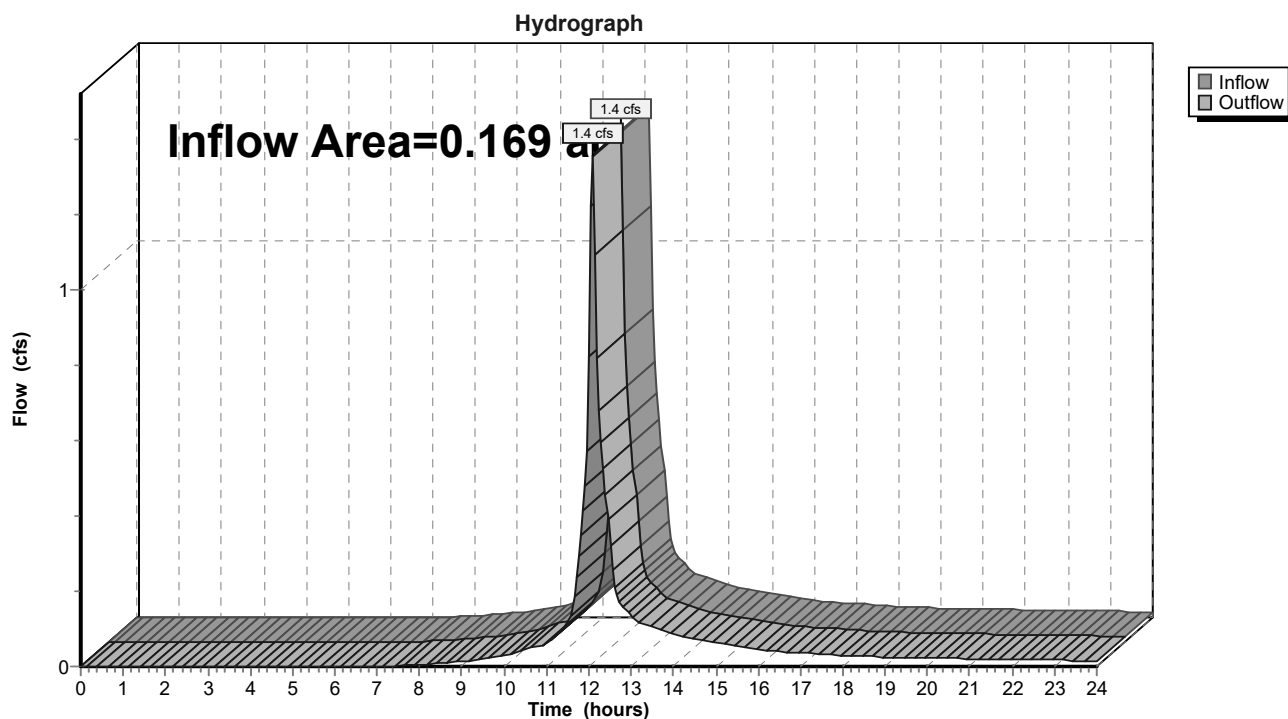
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	50	0.1170	0.2		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.04"
0.2	7	0.0200	0.7		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
5.6	57	Total, Increased to minimum Tc = 6.0 min			

Subcatchment SC-3: Subcatchment 3

Summary for Reach DP-1: Design Point 1

Inflow Area = 0.169 ac, 45.00% Impervious, Inflow Depth > 7.01" for 100-Yr 24 Hr event
Inflow = 1.4 cfs @ 12.09 hrs, Volume= 0.10 af
Outflow = 1.4 cfs @ 12.09 hrs, Volume= 0.10 af, Atten= 0%, Lag= 0.0 min

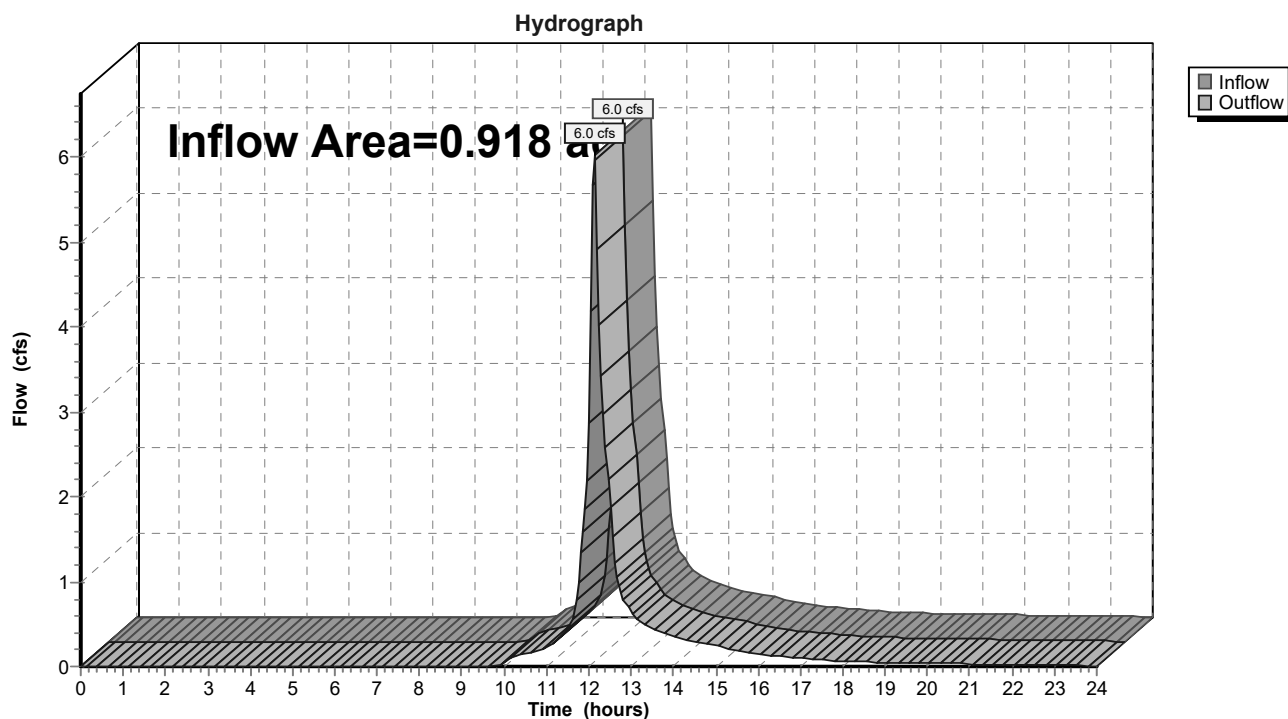
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-1: Design Point 1

Summary for Reach DP-2: Design Point 2

Inflow Area = 0.918 ac, 34.65% Impervious, Inflow Depth > 5.03" for 100-Yr 24 Hr event
Inflow = 6.0 cfs @ 12.14 hrs, Volume= 0.38 af
Outflow = 6.0 cfs @ 12.14 hrs, Volume= 0.38 af, Atten= 0%, Lag= 0.0 min

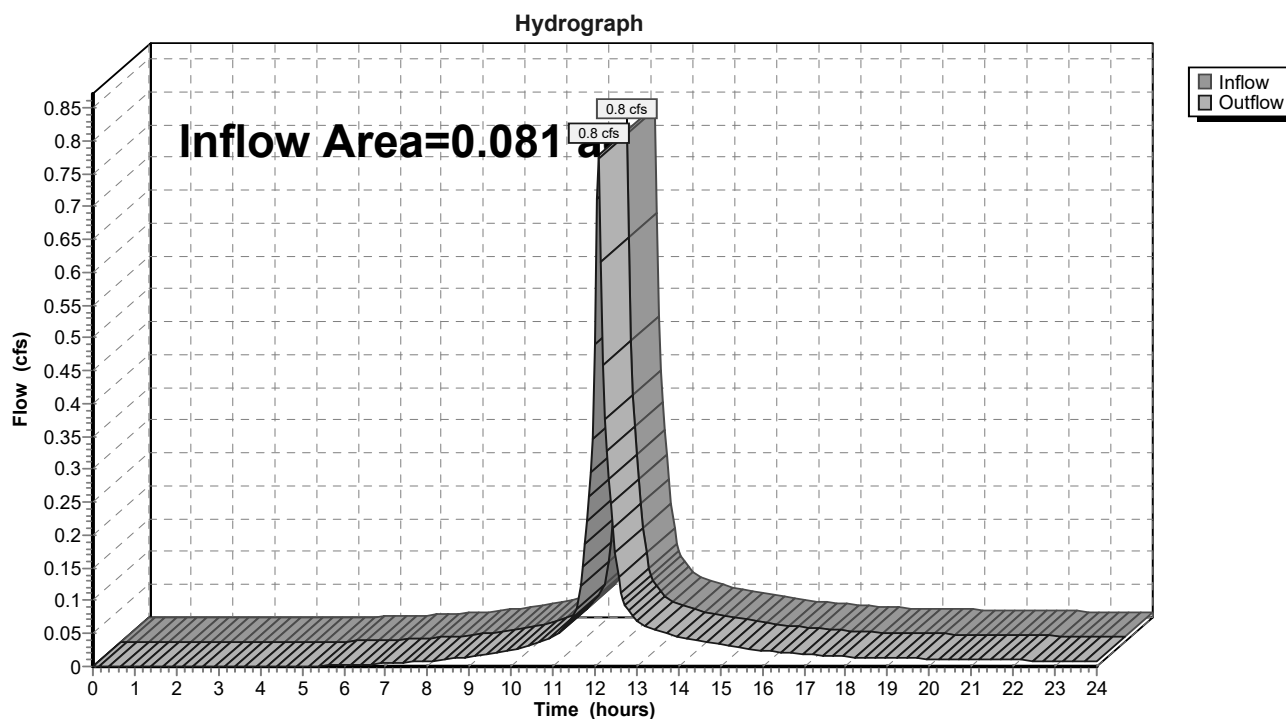
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-2: Design Point 2

Summary for Reach DP-3: Design Point 3

Inflow Area = 0.081 ac, 0.00% Impervious, Inflow Depth > 8.55" for 100-Yr 24 Hr event
Inflow = 0.8 cfs @ 12.09 hrs, Volume= 0.06 af
Outflow = 0.8 cfs @ 12.09 hrs, Volume= 0.06 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach DP-3: Design Point 3

Summary for Pond EX-D1: Existing Depression-1

Inflow Area = 0.261 ac, 15.47% Impervious, Inflow Depth > 4.00" for 100-Yr 24 Hr event
 Inflow = 1.0 cfs @ 12.17 hrs, Volume= 0.09 af
 Outflow = 1.0 cfs @ 12.17 hrs, Volume= 0.08 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 12.17 hrs, Volume= 0.04 af
 Primary = 1.0 cfs @ 12.17 hrs, Volume= 0.04 af
 Routed to Pond EX-D2 : Existing Depression-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 80.18' @ 12.17 hrs Surf.Area= 888 sf Storage= 450 cf

Plug-Flow detention time= 63.9 min calculated for 0.08 af (95% of inflow)
 Center-of-Mass det. time= 37.8 min (898.9 - 861.1)

Volume	Invert	Avail.Storage	Storage Description		
#1	78.80'	819 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
78.80	32	25.0	0	0	32
79.00	64	46.0	9	9	151
80.00	648	104.0	305	315	847
80.50	1,421	148.0	505	819	1,732

Device	Routing	Invert	Outlet Devices											
#1	Primary	80.10'	20.0' long x 5.0' breadth Broad-Crested Rectangular Weir											
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00											
			2.50 3.00 3.50 4.00 4.50 5.00 5.50											
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65											
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88											
#2	Discarded	78.80'	2.410 in/hr Exfiltration over Surface area											

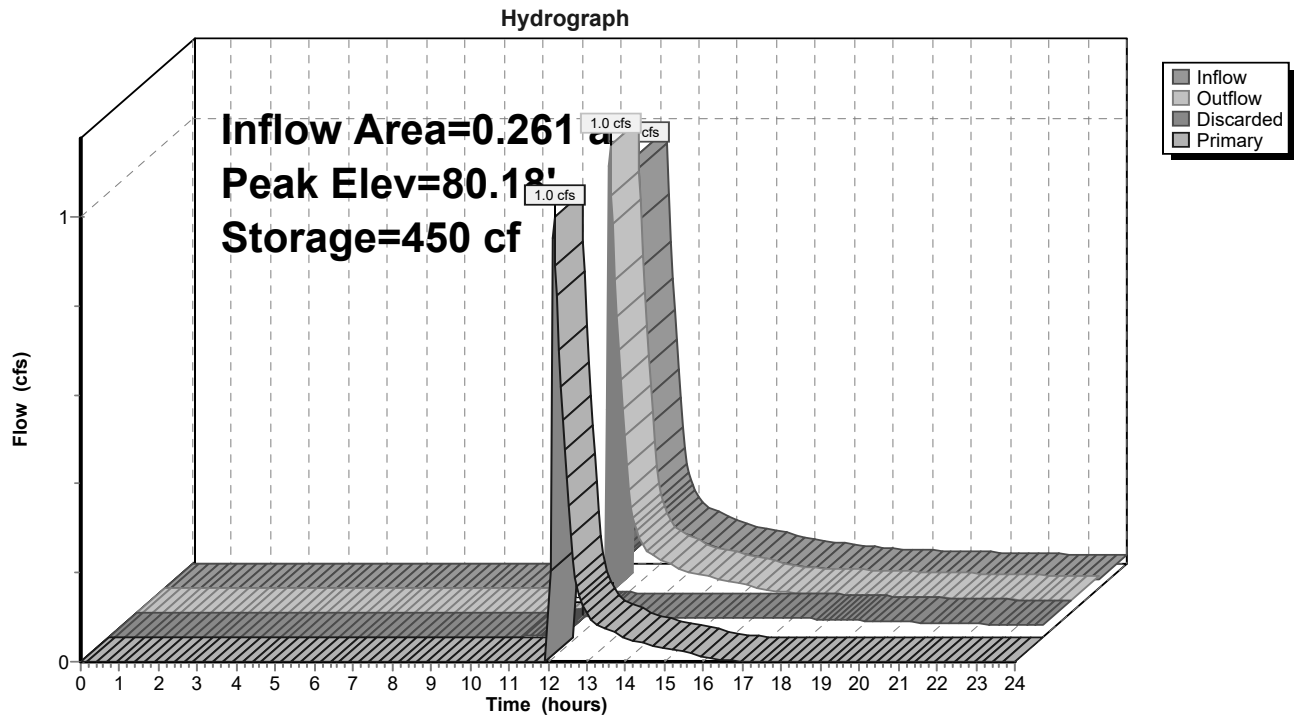
Discarded OutFlow Max=0.0 cfs @ 12.17 hrs HW=80.17' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.9 cfs @ 12.17 hrs HW=80.17' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir**(Weir Controls 0.9 cfs @ 0.6 fps)

Pond EX-D1: Existing Depression-1



Summary for Pond EX-D2: Existing Depression-2

Inflow Area = 0.918 ac, 34.65% Impervious, Inflow Depth > 6.09" for 100-Yr 24 Hr event
 Inflow = 6.1 cfs @ 12.14 hrs, Volume= 0.47 af
 Outflow = 6.1 cfs @ 12.14 hrs, Volume= 0.46 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.1 cfs @ 11.80 hrs, Volume= 0.07 af
 Primary = 6.0 cfs @ 12.14 hrs, Volume= 0.38 af
 Routed to Reach DP-2 : Design Point 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 76.80' @ 12.14 hrs Surf.Area= 1,120 sf Storage= 519 cf

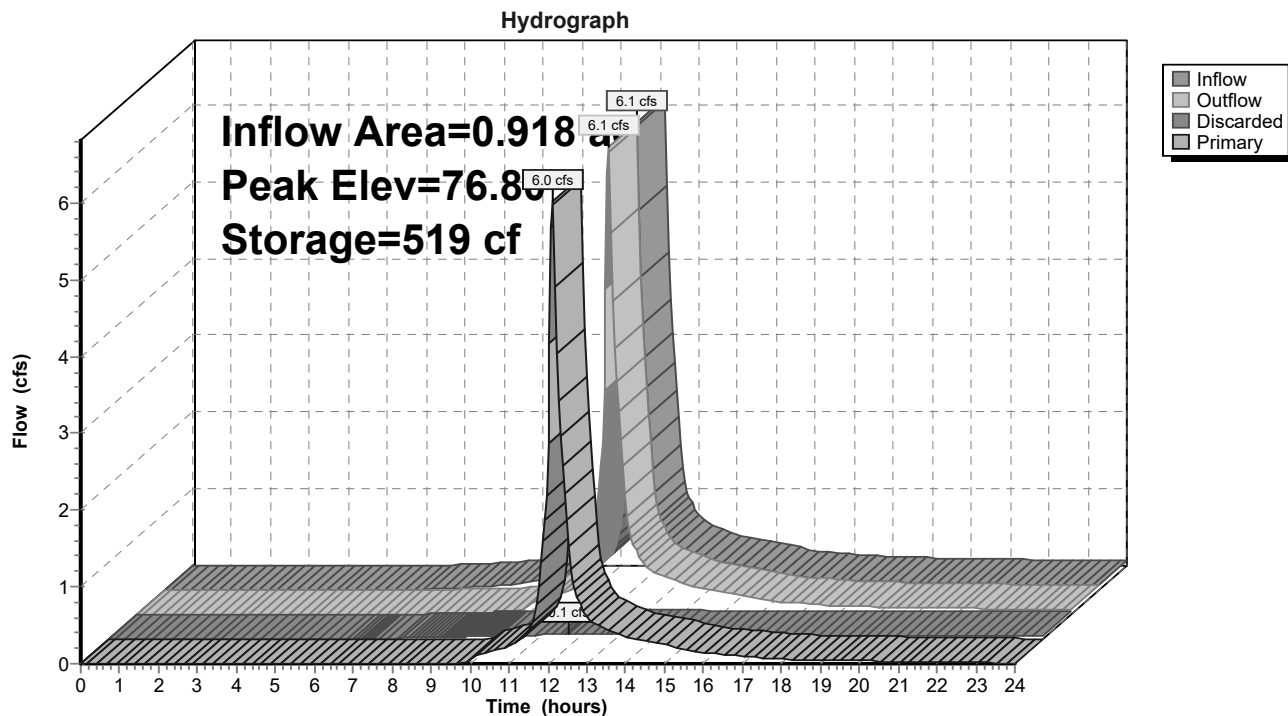
Plug-Flow detention time= 18.9 min calculated for 0.46 af (98% of inflow)
 Center-of-Mass det. time= 6.7 min (812.3 - 805.6)

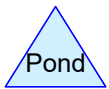
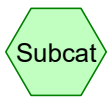
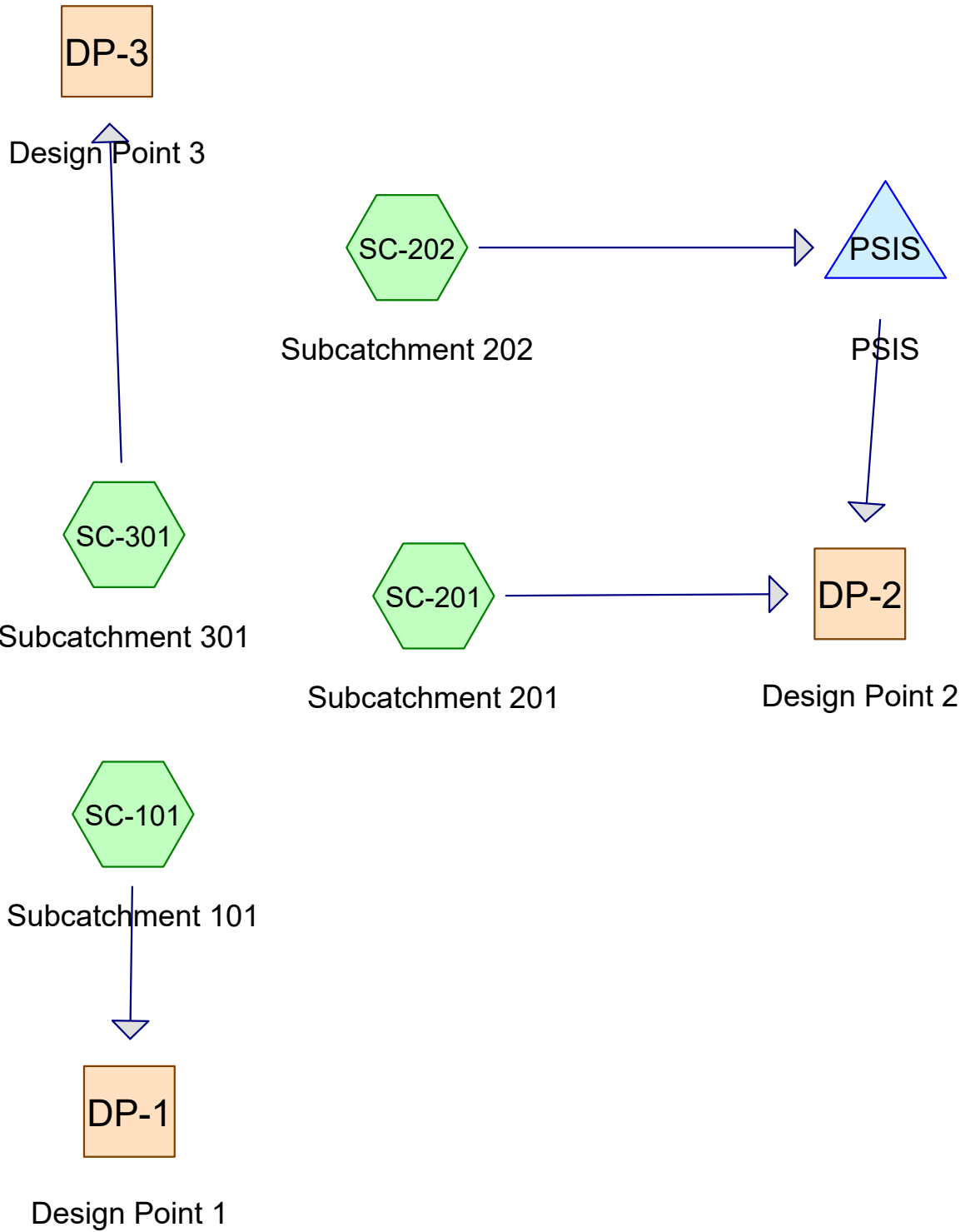
Volume	Invert	Avail.Storage	Storage Description		
#1	75.60'	519 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
75.60	172	80.0	0	0	172
76.00	345	115.0	101	101	717
76.60	1,120	212.0	417	519	3,243

Device	Routing	Invert	Outlet Devices												
#1	Primary	76.50'	15.0' long x 5.0' breadth Broad-Crested Rectangular Weir												
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00												
			2.50 3.00 3.50 4.00 4.50 5.00 5.50												
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65												
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88												
#2	Discarded	75.60'	2.410 in/hr Exfiltration over Surface area												

Discarded OutFlow Max=0.1 cfs @ 11.80 hrs HW=76.61' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=5.9 cfs @ 12.14 hrs HW=76.80' (Free Discharge)
 ↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 5.9 cfs @ 1.3 fps)

Pond EX-D2: Existing Depression-2



Routing Diagram for 21583-POST_SM Bldg
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.226	39	>75% Grass cover, Good, HSG A (SC-101, SC-201, SC-202)
0.262	80	>75% Grass cover, Good, HSG D (SC-201, SC-202, SC-301)
0.017	98	Existing Roof (SC-101, SC-201)
0.016	98	Proposed Bit. Conc. Walkway (SC-202)
0.051	98	Proposed Driveway (SC-101)
0.560	98	Proposed Roof Area (SC-202)
0.035	96	Proposed Stone Dust Walkway (SC-201, SC-202)
1.169	82	TOTAL AREA

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Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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Summary for Subcatchment SC-101: Subcatchment 101

Runoff = 0.2 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 1.62"
 Routed to Reach DP-1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

Area (sf)	CN	Description
1,288	39	>75% Grass cover, Good, HSG A
* 2,243	98	Proposed Driveway
* 218	98	Existing Roof
406	39	>75% Grass cover, Good, HSG A
4,155	74	Weighted Average
1,694		40.77% Pervious Area
2,461		59.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	25	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
0.4	25	0.0200	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.01"
0.0	2	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.7					Direct Entry, Min. Engineering Practice
6.0	52	Total			

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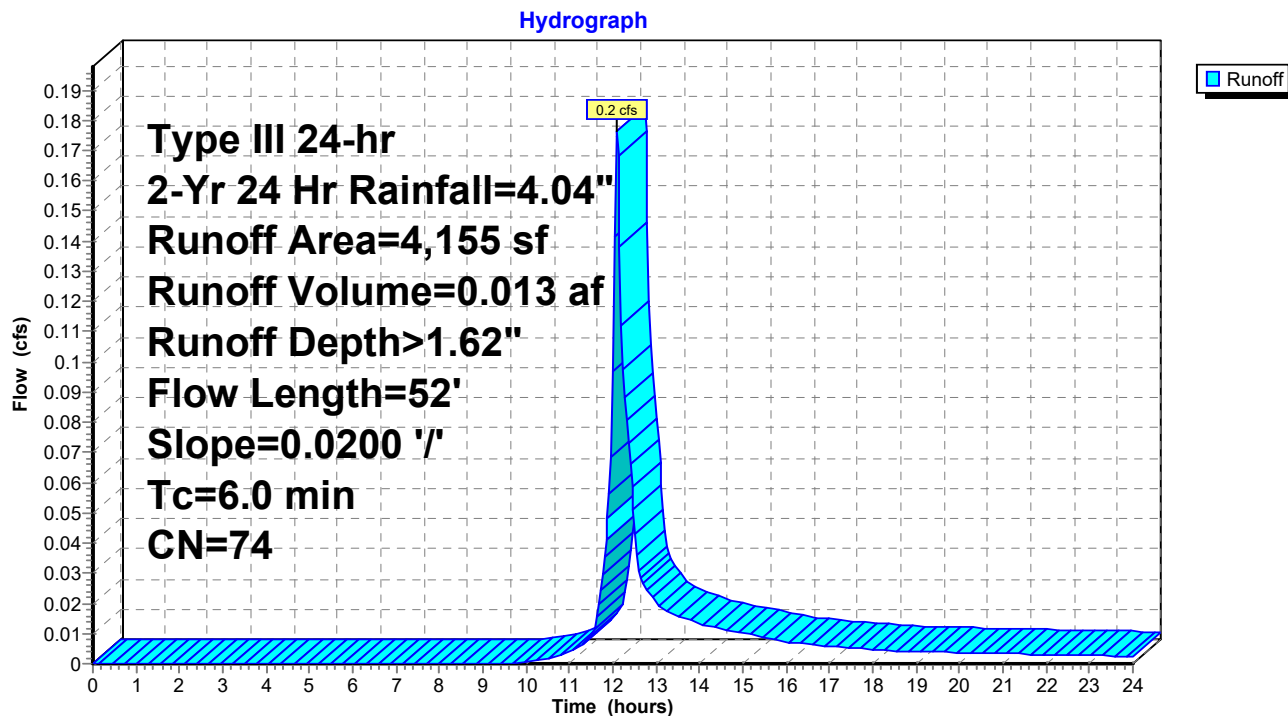
Proposed Conditions

Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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Subcatchment SC-101: Subcatchment 101



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Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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Summary for Subcatchment SC-201: Subcatchment 201

Runoff = 0.3 cfs @ 12.14 hrs, Volume= 0.027 af, Depth> 1.17"
 Routed to Reach DP-2 : Design Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

Area (sf)	CN	Description
4,295	39	>75% Grass cover, Good, HSG A
* 791	96	Proposed Stone Dust Walkway
6,455	80	>75% Grass cover, Good, HSG D
* 218	98	Existing Roof
* 322	98	Existing Roof
12,081	67	Weighted Average
11,541		95.53% Pervious Area
540		4.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.0570	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
4.8	89	0.0700	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
1.0	26	0.3300	0.4		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
9.1	165	Total			

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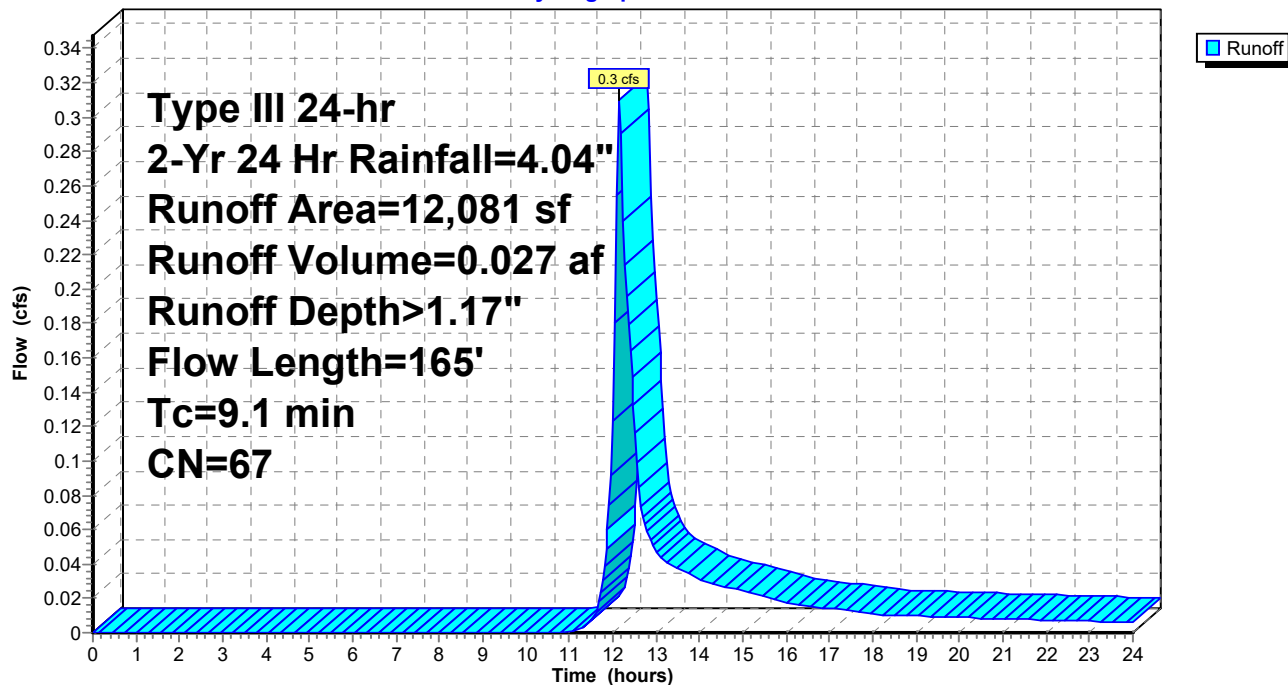
Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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Subcatchment SC-201: Subcatchment 201

Hydrograph



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Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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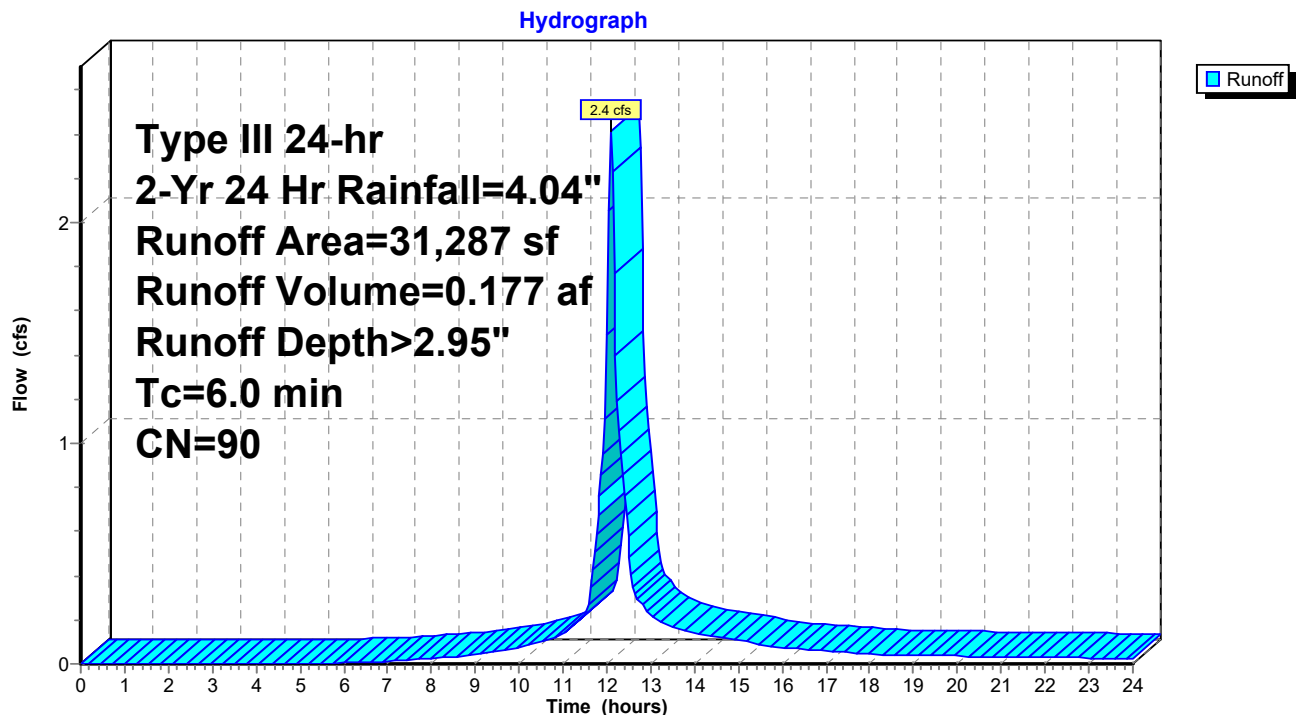
Summary for Subcatchment SC-202: Subcatchment 202

Runoff = 2.4 cfs @ 12.09 hrs, Volume= 0.177 af, Depth> 2.95"
Routed to Pond PSIS : PSIS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

	Area (sf)	CN	Description
*	24,400	98	Proposed Roof Area
	3,872	39	>75% Grass cover, Good, HSG A
	1,583	80	>75% Grass cover, Good, HSG D
*	720	96	Proposed Stone Dust Walkway
*	712	98	Proposed Bit. Conc. Walkway
	31,287	90	Weighted Average
	6,175		19.74% Pervious Area
	25,112		80.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Standard

Subcatchment SC-202: Subcatchment 202

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Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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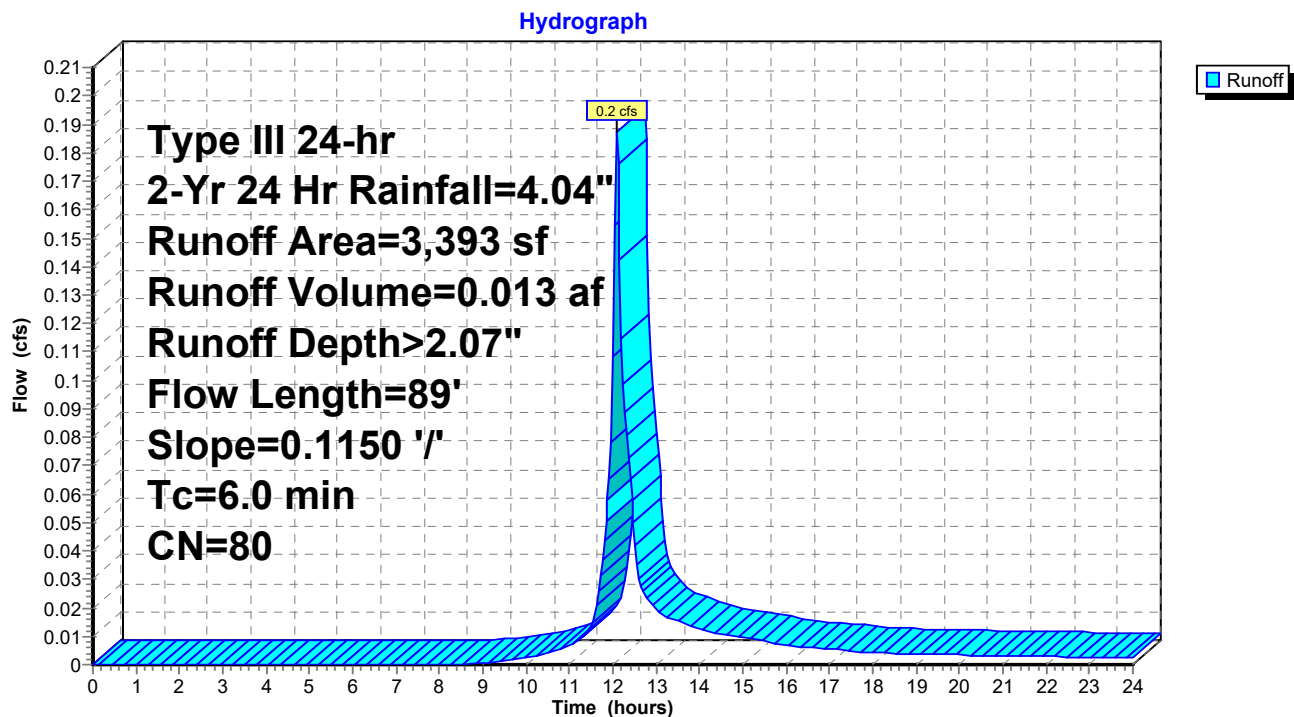
Summary for Subcatchment SC-301: Subcatchment 301

Runoff = 0.2 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 2.07"
 Routed to Reach DP-3 : Design Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

Area (sf)	CN	Description
3,393	80	>75% Grass cover, Good, HSG D
3,393		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1150	0.2		Sheet Flow,
					Grass: Dense n= 0.240 P2= 4.01"
0.4	39	0.1150	1.7		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
2.0					Direct Entry, Min. Engineering Practice
6.0	89	Total			

Subcatchment SC-301: Subcatchment 301

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Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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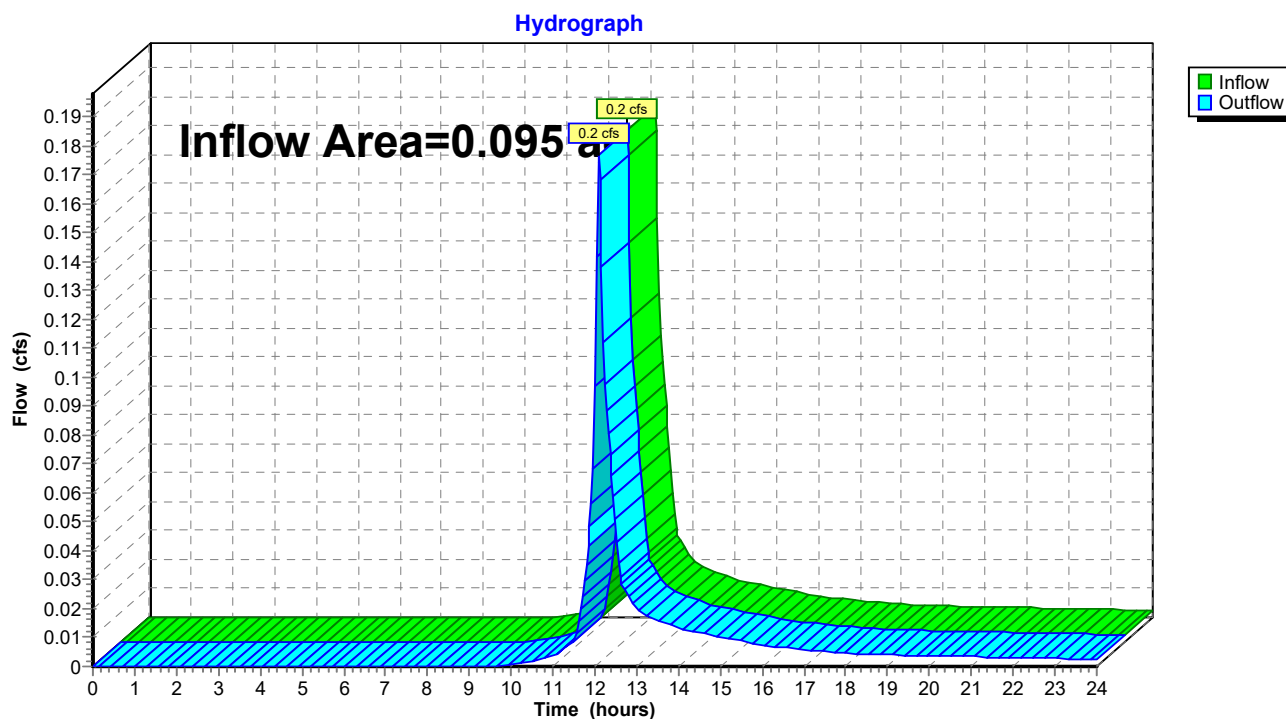
Page 9

Summary for Reach DP-1: Design Point 1

Inflow Area = 0.095 ac, 59.23% Impervious, Inflow Depth > 1.62" for 2-Yr 24 Hr event
Inflow = 0.2 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.2 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-1: Design Point 1



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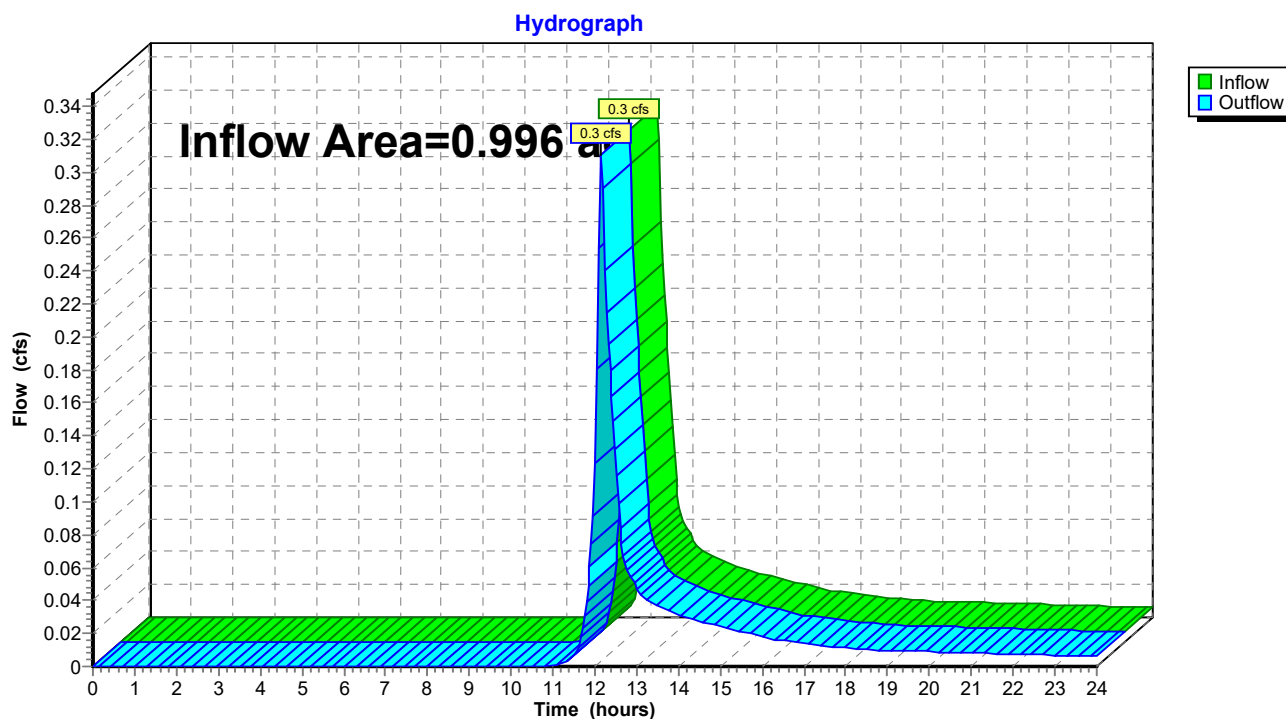
Page 10

Summary for Reach DP-2: Design Point 2

Inflow Area = 0.996 ac, 59.15% Impervious, Inflow Depth > 0.33" for 2-Yr 24 Hr event
Inflow = 0.3 cfs @ 12.14 hrs, Volume= 0.027 af
Outflow = 0.3 cfs @ 12.14 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-2: Design Point 2



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Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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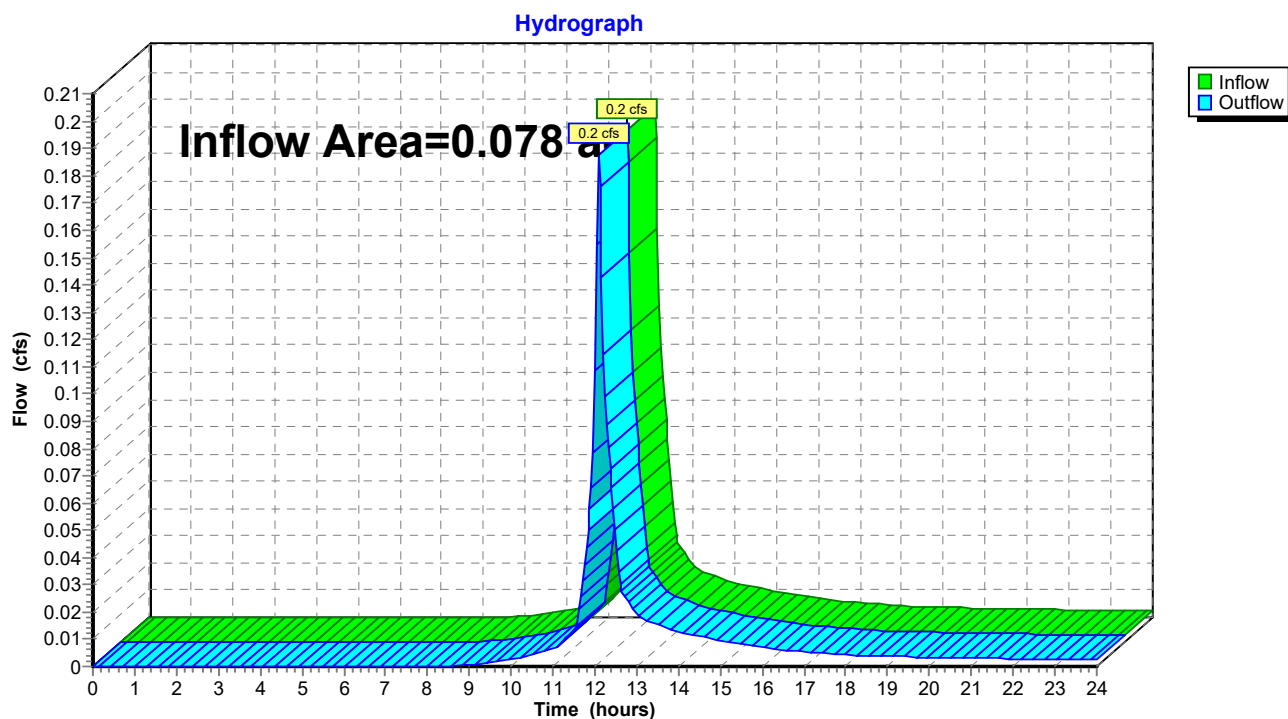
Page 11

Summary for Reach DP-3: Design Point 3

Inflow Area = 0.078 ac, 0.00% Impervious, Inflow Depth > 2.07" for 2-Yr 24 Hr event
Inflow = 0.2 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.2 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-3: Design Point 3



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Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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Summary for Pond PSIS: PSIS

Inflow Area = 0.718 ac, 80.26% Impervious, Inflow Depth > 2.95" for 2-Yr 24 Hr event
 Inflow = 2.4 cfs @ 12.09 hrs, Volume= 0.177 af
 Outflow = 0.2 cfs @ 11.36 hrs, Volume= 0.177 af, Atten= 93%, Lag= 0.0 min
 Discarded = 0.2 cfs @ 11.36 hrs, Volume= 0.177 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Reach DP-2 : Design Point 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Peak Elev= 83.25' @ 13.59 hrs Surf.Area= 2,958 sf Storage= 3,312 cf

Plug-Flow detention time= 175.3 min calculated for 0.176 af (100% of inflow)
 Center-of-Mass det. time= 174.0 min (971.7 - 797.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	81.50'	5,019 cf	83.00'W x 35.64'L x 6.75'H Field A 19,968 cf Overall - 7,420 cf Embedded = 12,548 cf x 40.0% Voids
#2A	82.25'	7,420 cf	ADS_StormTech MC-4500 b +Cap x 63 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 63 Chambers in 9 Rows Cap Storage= 39.5 cf x 2 x 9 rows = 711.0 cf
		12,439 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	81.50'	2.410 in/hr Exfiltration over Surface area
#2	Device 3	86.67'	6.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	86.67'	12.0" Round Culvert L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 86.67' / 86.50' S= 0.0340 ' S= 0.0340 ' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.2 cfs @ 11.36 hrs HW=81.57' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=81.50' (Free Discharge)
 ↑ **3=Culvert** (Controls 0.0 cfs)
 ↑ **2=Orifice/Grate** (Controls 0.0 cfs)

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Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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Pond PSIS: PSIS - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech®MC-4500 with cap volume)

Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf

Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap

Cap Storage= 39.5 cf x 2 x 9 rows = 711.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

7 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 33.64' Row Length +12.0" End Stone x 2 = 35.64' Base Length

9 Rows x 100.0" Wide + 9.0" Spacing x 8 + 12.0" Side Stone x 2 = 83.00' Base Width

9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

63 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 9 Rows = 7,419.9 cf Chamber Storage

19,968.2 cf Field - 7,419.9 cf Chambers = 12,548.3 cf Stone x 40.0% Voids = 5,019.3 cf Stone Storage

Chamber Storage + Stone Storage = 12,439.2 cf = 0.286 af

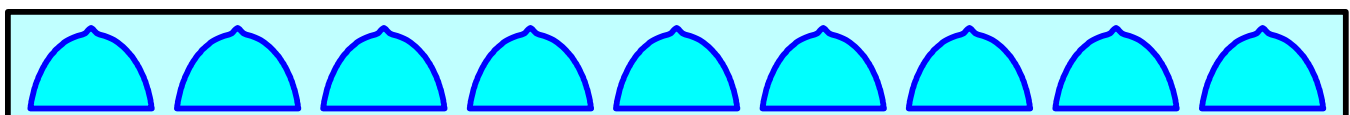
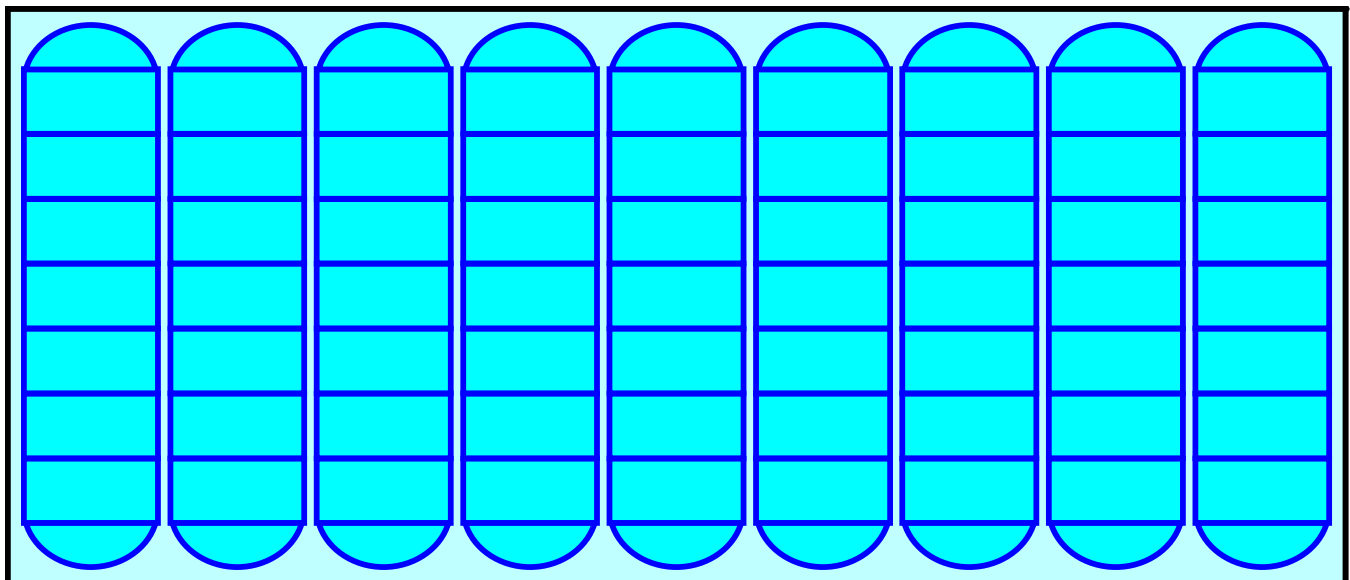
Overall Storage Efficiency = 62.3%

Overall System Size = 35.64' x 83.00' x 6.75'

63 Chambers

739.6 cy Field

464.8 cy Stone



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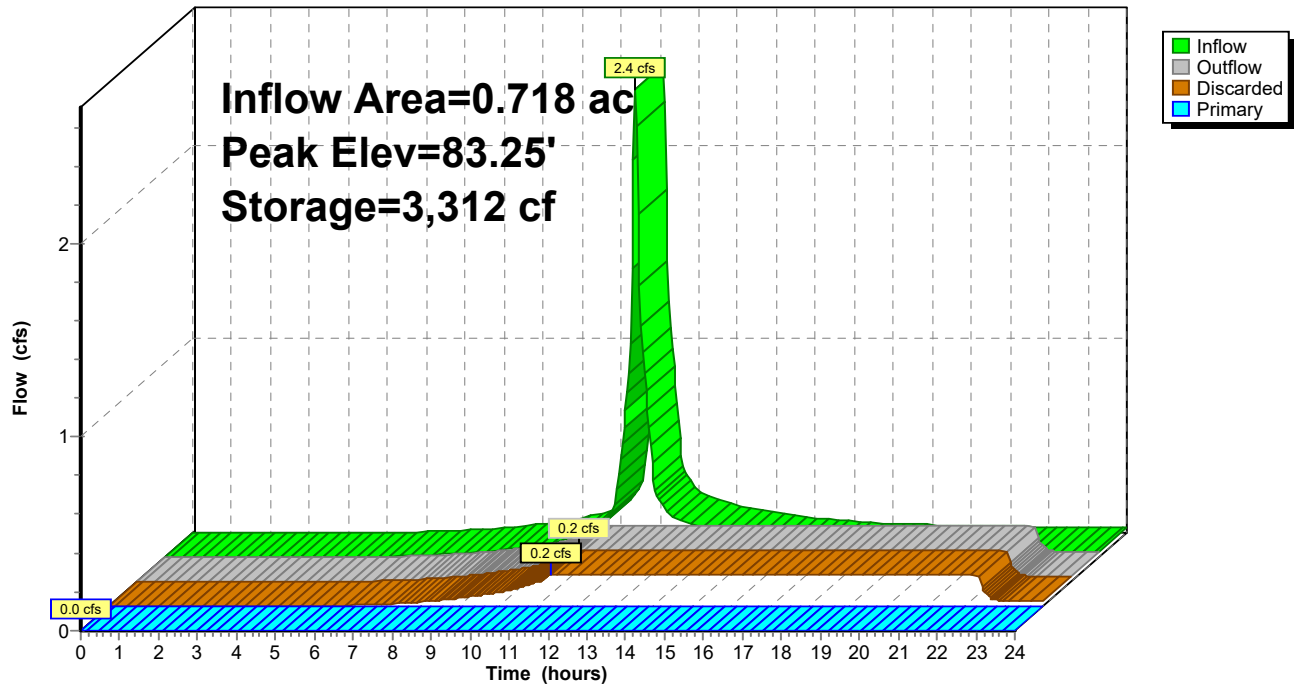
Type III 24-hr 2-Yr 24 Hr Rainfall=4.04"

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Pond PSIS: PSIS

Hydrograph



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Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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Summary for Subcatchment SC-101: Subcatchment 101

Runoff = 0.4 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 3.55"
 Routed to Reach DP-1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

Area (sf)	CN	Description
1,288	39	>75% Grass cover, Good, HSG A
* 2,243	98	Proposed Driveway
* 218	98	Existing Roof
406	39	>75% Grass cover, Good, HSG A
4,155	74	Weighted Average
1,694		40.77% Pervious Area
2,461		59.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	25	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
0.4	25	0.0200	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.01"
0.0	2	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.7					Direct Entry, Min. Engineering Practice
6.0	52	Total			

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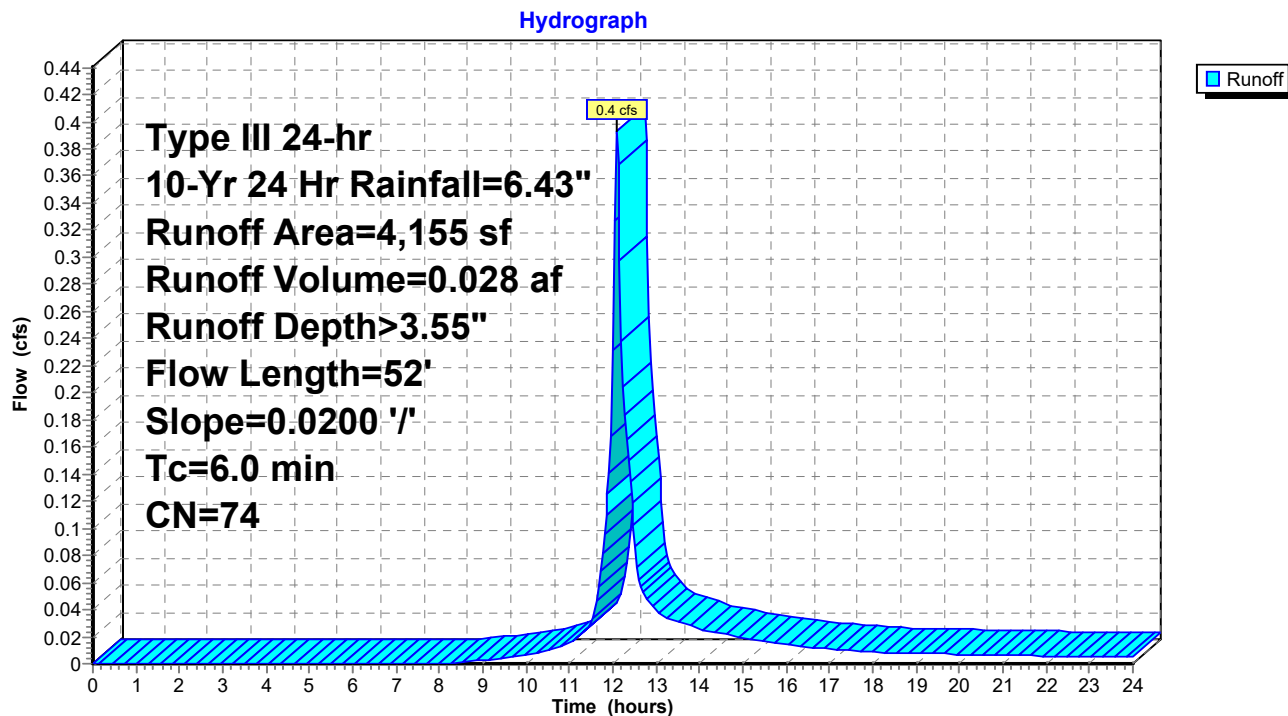
Proposed Conditions

Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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Subcatchment SC-101: Subcatchment 101



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Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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Summary for Subcatchment SC-201: Subcatchment 201

Runoff = 0.8 cfs @ 12.13 hrs, Volume= 0.066 af, Depth> 2.85"
 Routed to Reach DP-2 : Design Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

Area (sf)	CN	Description
4,295	39	>75% Grass cover, Good, HSG A
* 791	96	Proposed Stone Dust Walkway
6,455	80	>75% Grass cover, Good, HSG D
* 218	98	Existing Roof
* 322	98	Existing Roof
12,081	67	Weighted Average
11,541		95.53% Pervious Area
540		4.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.0570	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
4.8	89	0.0700	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
1.0	26	0.3300	0.4		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
9.1	165	Total			

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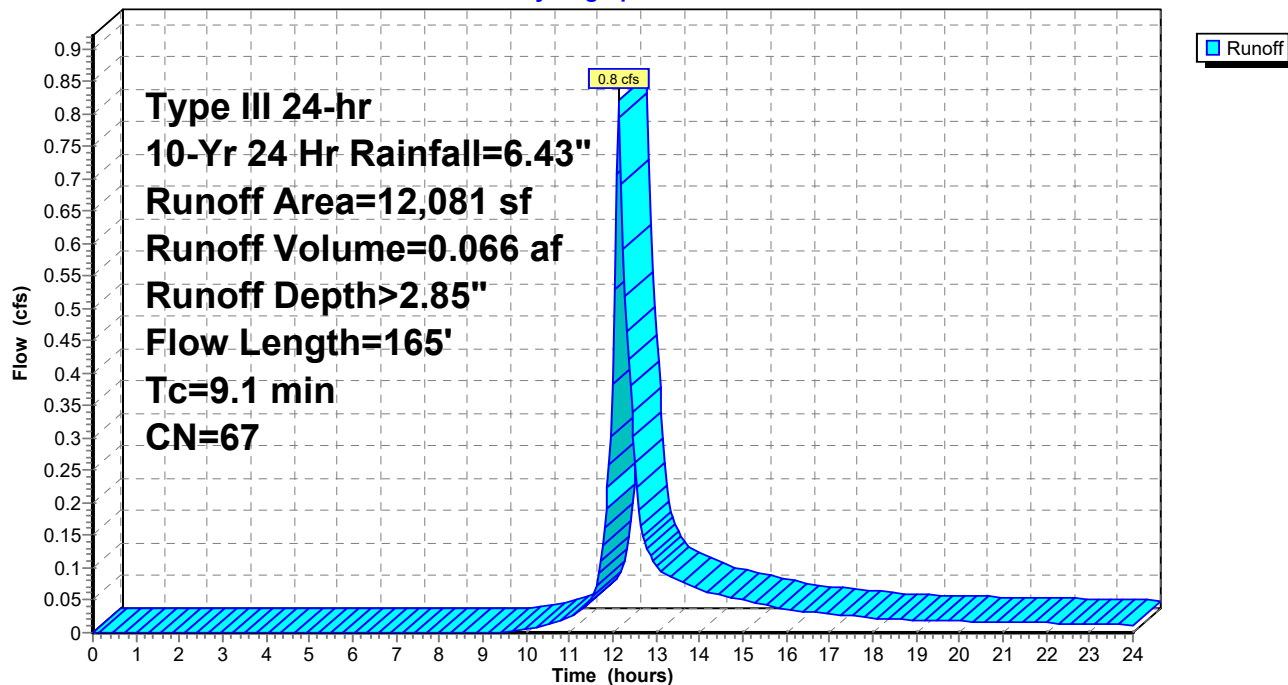
Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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Subcatchment SC-201: Subcatchment 201

Hydrograph



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Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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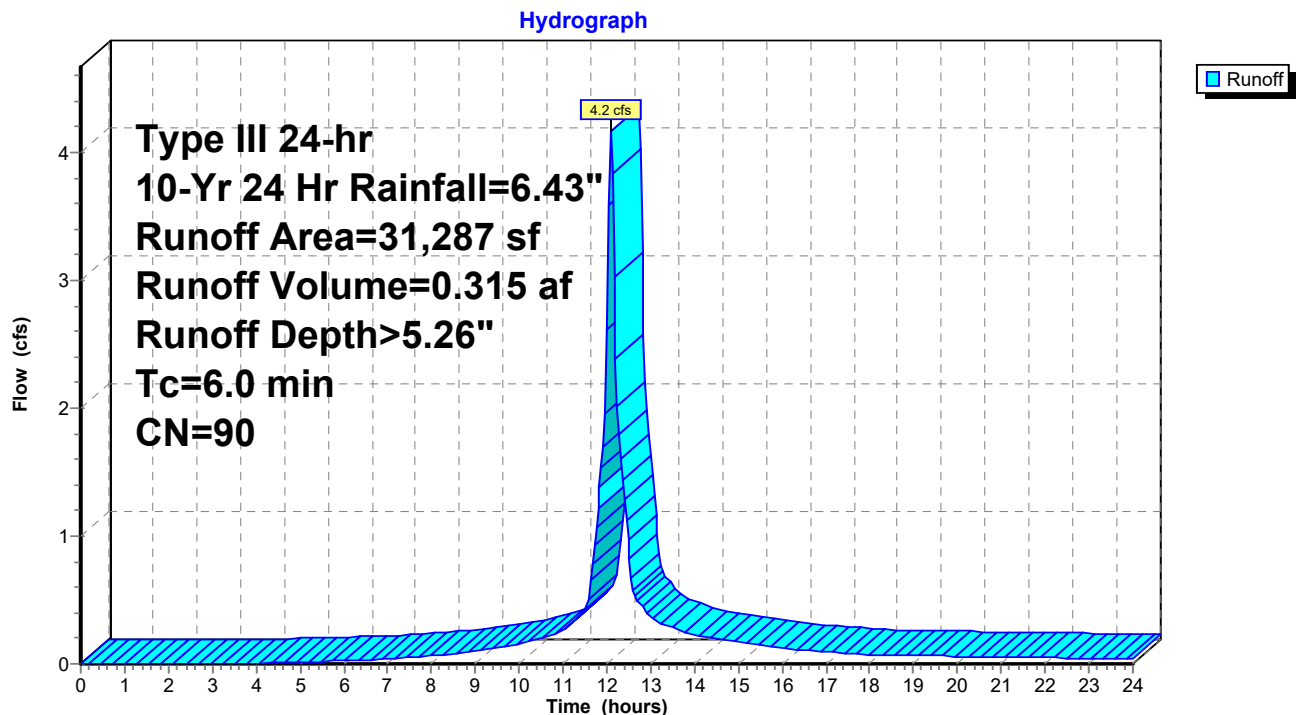
Summary for Subcatchment SC-202: Subcatchment 202

Runoff = 4.2 cfs @ 12.09 hrs, Volume= 0.315 af, Depth> 5.26"
Routed to Pond PSIS : PSIS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

	Area (sf)	CN	Description
*	24,400	98	Proposed Roof Area
	3,872	39	>75% Grass cover, Good, HSG A
	1,583	80	>75% Grass cover, Good, HSG D
*	720	96	Proposed Stone Dust Walkway
*	712	98	Proposed Bit. Conc. Walkway
	31,287	90	Weighted Average
	6,175		19.74% Pervious Area
	25,112		80.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Standard

Subcatchment SC-202: Subcatchment 202

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Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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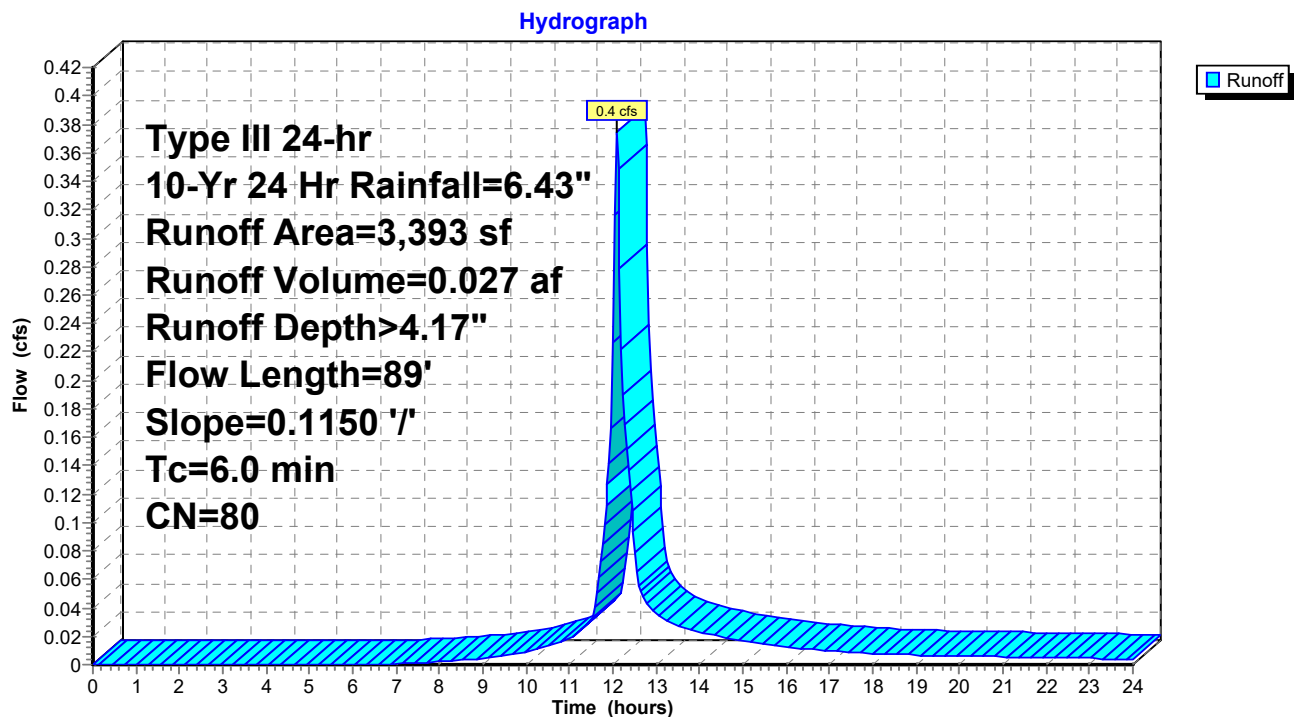
Summary for Subcatchment SC-301: Subcatchment 301

Runoff = 0.4 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 4.17"
 Routed to Reach DP-3 : Design Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

Area (sf)	CN	Description
3,393	80	>75% Grass cover, Good, HSG D
3,393		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1150	0.2		Sheet Flow,
					Grass: Dense n= 0.240 P2= 4.01"
0.4	39	0.1150	1.7		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
2.0					Direct Entry, Min. Engineering Practice
6.0	89	Total			

Subcatchment SC-301: Subcatchment 301

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Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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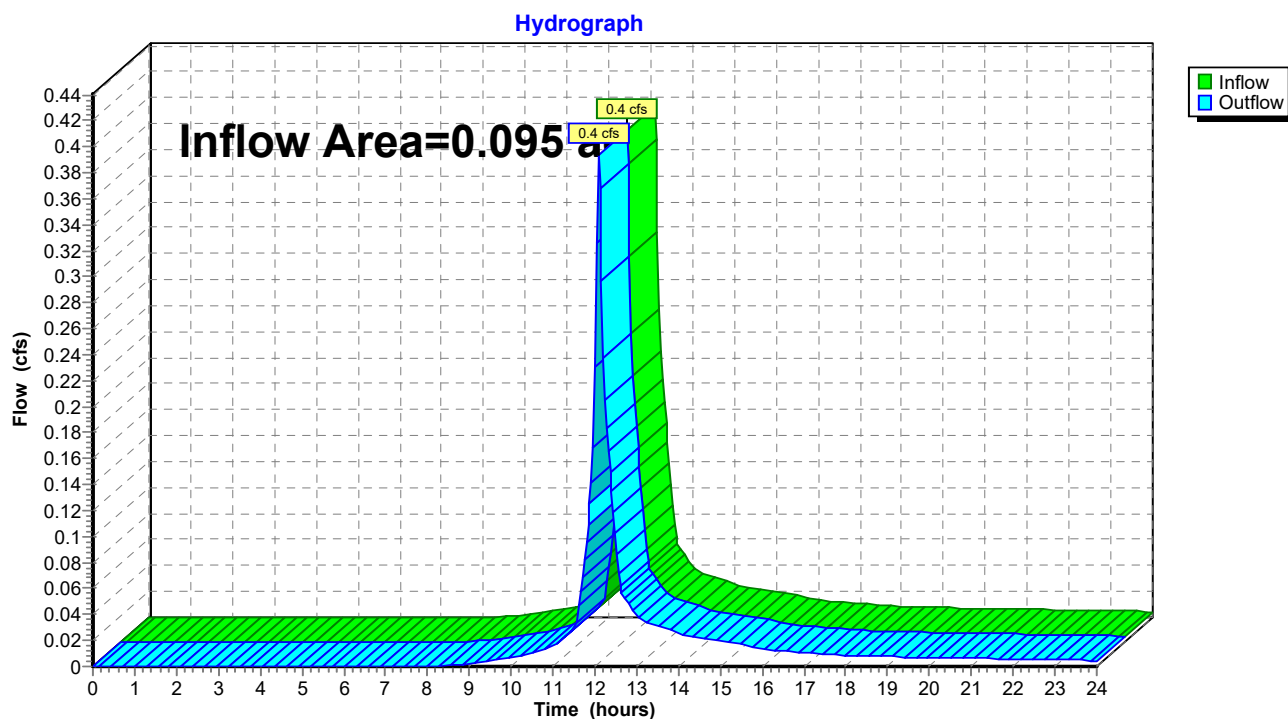
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Summary for Reach DP-1: Design Point 1

Inflow Area = 0.095 ac, 59.23% Impervious, Inflow Depth > 3.55" for 10-Yr 24 Hr event
Inflow = 0.4 cfs @ 12.09 hrs, Volume= 0.028 af
Outflow = 0.4 cfs @ 12.09 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-1: Design Point 1



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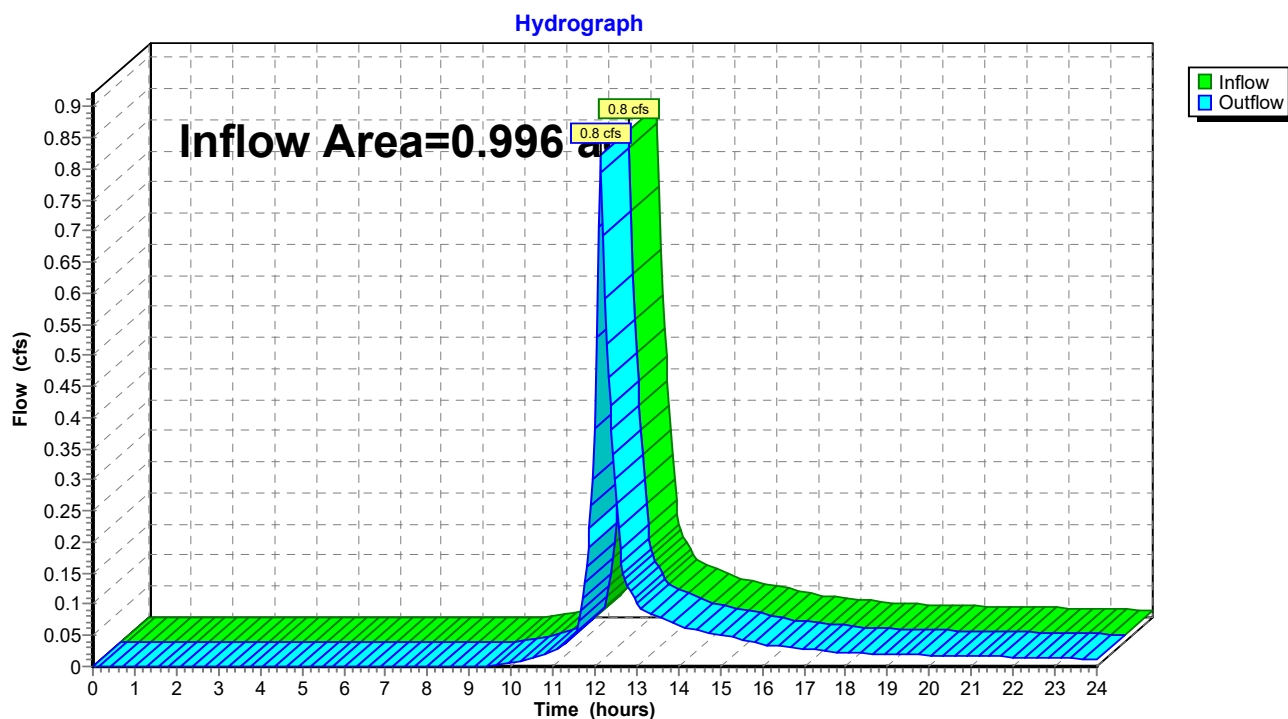
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Summary for Reach DP-2: Design Point 2

Inflow Area = 0.996 ac, 59.15% Impervious, Inflow Depth > 0.79" for 10-Yr 24 Hr event
Inflow = 0.8 cfs @ 12.13 hrs, Volume= 0.066 af
Outflow = 0.8 cfs @ 12.13 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-2: Design Point 2



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Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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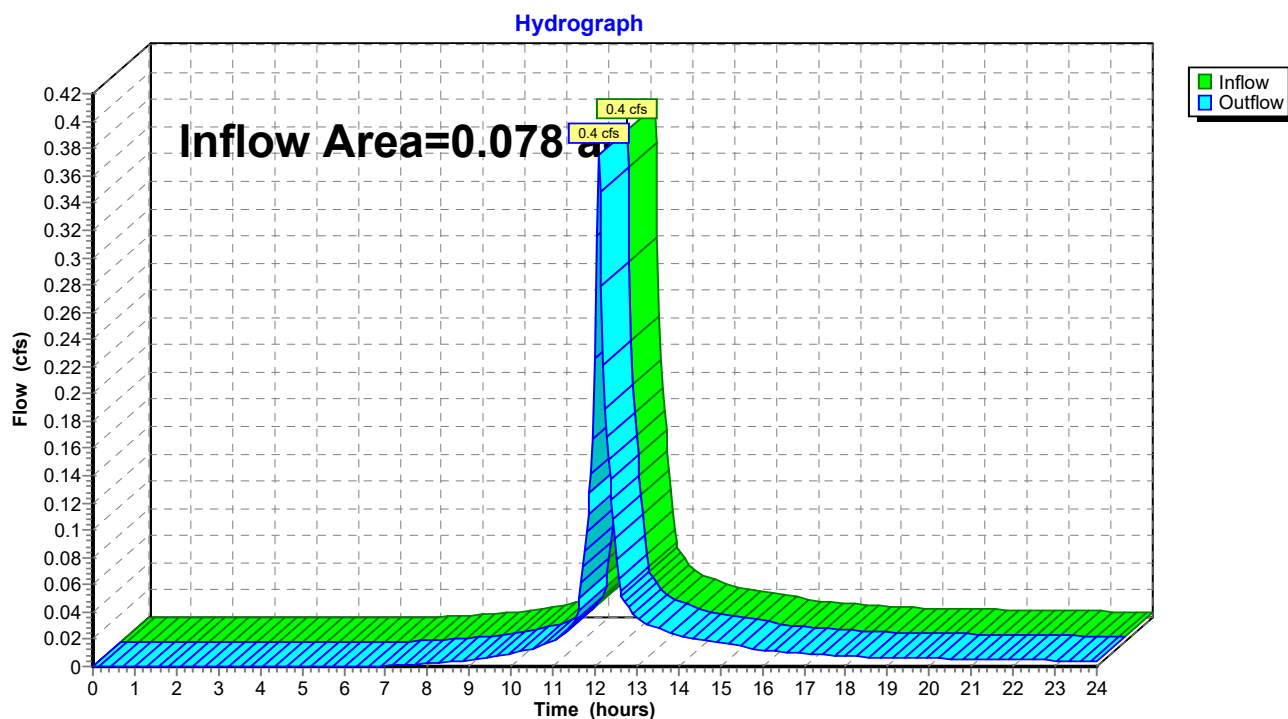
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Summary for Reach DP-3: Design Point 3

Inflow Area = 0.078 ac, 0.00% Impervious, Inflow Depth > 4.17" for 10-Yr 24 Hr event
Inflow = 0.4 cfs @ 12.09 hrs, Volume= 0.027 af
Outflow = 0.4 cfs @ 12.09 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-3: Design Point 3



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Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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Summary for Pond PSIS: PSIS

Inflow Area = 0.718 ac, 80.26% Impervious, Inflow Depth > 5.26" for 10-Yr 24 Hr event
 Inflow = 4.2 cfs @ 12.09 hrs, Volume= 0.315 af
 Outflow = 0.2 cfs @ 10.24 hrs, Volume= 0.216 af, Atten= 96%, Lag= 0.0 min
 Discarded = 0.2 cfs @ 10.24 hrs, Volume= 0.216 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Reach DP-2 : Design Point 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Peak Elev= 84.97' @ 15.18 hrs Surf.Area= 2,958 sf Storage= 7,235 cf

Plug-Flow detention time= 270.8 min calculated for 0.216 af (69% of inflow)
 Center-of-Mass det. time= 178.2 min (960.2 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	81.50'	5,019 cf	83.00'W x 35.64'L x 6.75'H Field A 19,968 cf Overall - 7,420 cf Embedded = 12,548 cf x 40.0% Voids
#2A	82.25'	7,420 cf	ADS_StormTech MC-4500 b +Cap x 63 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 63 Chambers in 9 Rows Cap Storage= 39.5 cf x 2 x 9 rows = 711.0 cf
		12,439 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	81.50'	2.410 in/hr Exfiltration over Surface area
#2	Device 3	86.67'	6.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	86.67'	12.0" Round Culvert L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 86.67' / 86.50' S= 0.0340 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.2 cfs @ 10.24 hrs HW=81.57' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.2 cfs)**Primary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=81.50' (Free Discharge)↑ **3=Culvert** (Controls 0.0 cfs)↑ **2=Orifice/Grate** (Controls 0.0 cfs)

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Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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Pond PSIS: PSIS - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech®MC-4500 with cap volume)

Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf

Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap

Cap Storage= 39.5 cf x 2 x 9 rows = 711.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

7 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 33.64' Row Length +12.0" End Stone x 2 = 35.64' Base Length

9 Rows x 100.0" Wide + 9.0" Spacing x 8 + 12.0" Side Stone x 2 = 83.00' Base Width

9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

63 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 9 Rows = 7,419.9 cf Chamber Storage

19,968.2 cf Field - 7,419.9 cf Chambers = 12,548.3 cf Stone x 40.0% Voids = 5,019.3 cf Stone Storage

Chamber Storage + Stone Storage = 12,439.2 cf = 0.286 af

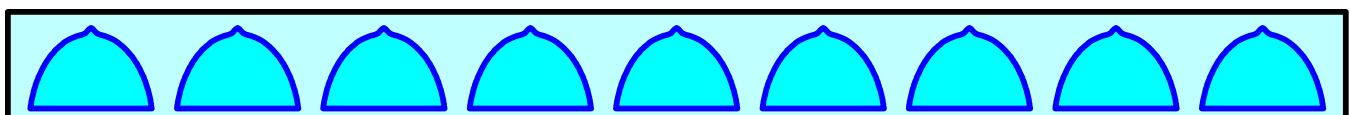
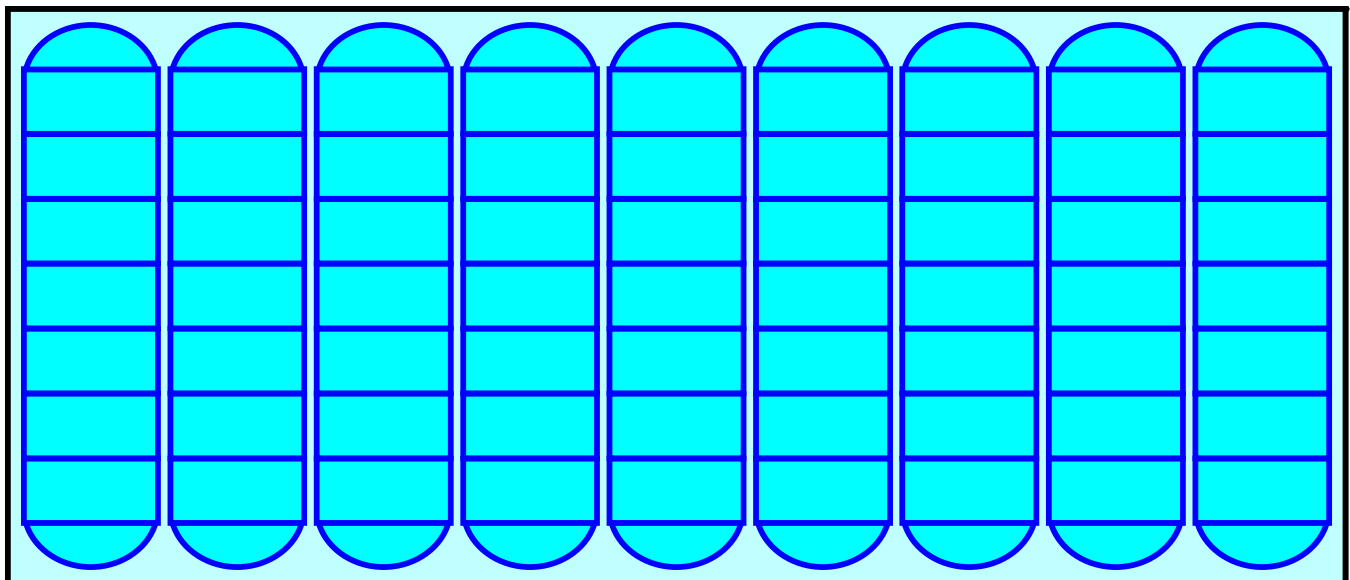
Overall Storage Efficiency = 62.3%

Overall System Size = 35.64' x 83.00' x 6.75'

63 Chambers

739.6 cy Field

464.8 cy Stone



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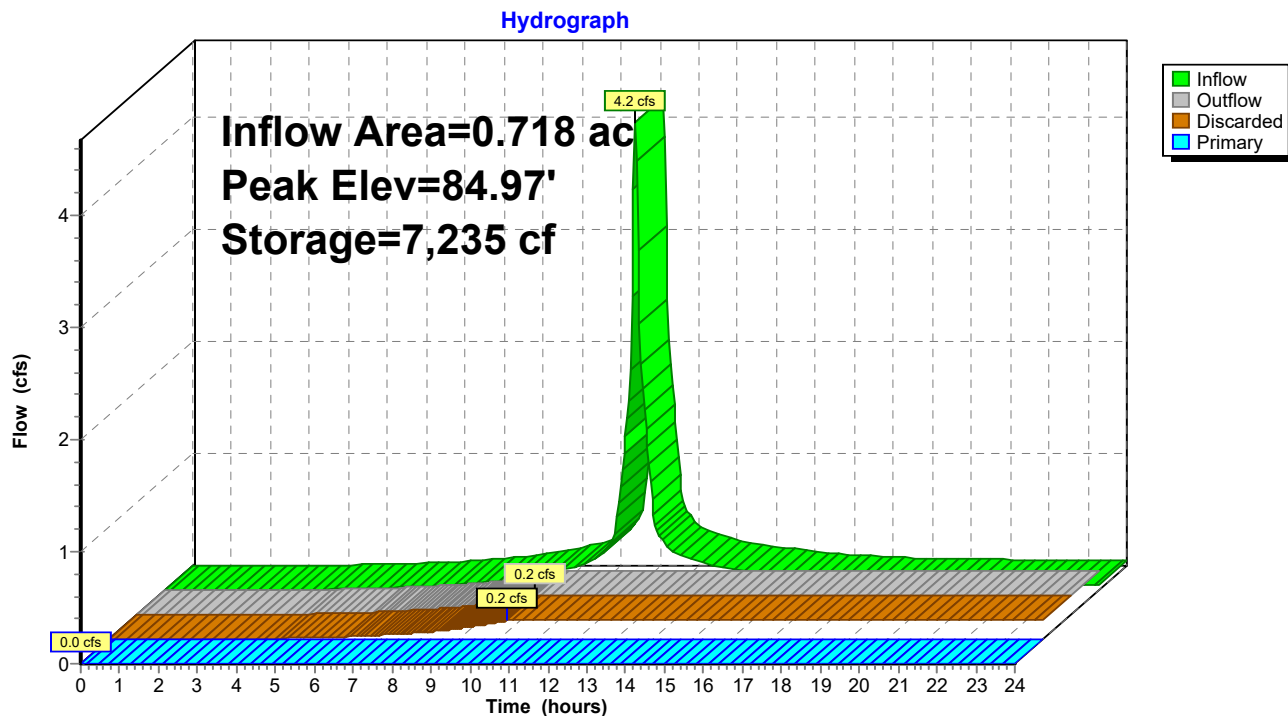
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Type III 24-hr 10-Yr 24 Hr Rainfall=6.43"

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Pond PSIS: PSIS



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Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

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Summary for Subcatchment SC-101: Subcatchment 101

Runoff = 0.7 cfs @ 12.09 hrs, Volume= 0.051 af, Depth> 6.46"
 Routed to Reach DP-1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

Area (sf)	CN	Description
1,288	39	>75% Grass cover, Good, HSG A
* 2,243	98	Proposed Driveway
* 218	98	Existing Roof
406	39	>75% Grass cover, Good, HSG A
4,155	74	Weighted Average
1,694		40.77% Pervious Area
2,461		59.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	25	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
0.4	25	0.0200	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.01"
0.0	2	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.7					Direct Entry, Min. Engineering Practice
6.0	52	Total			

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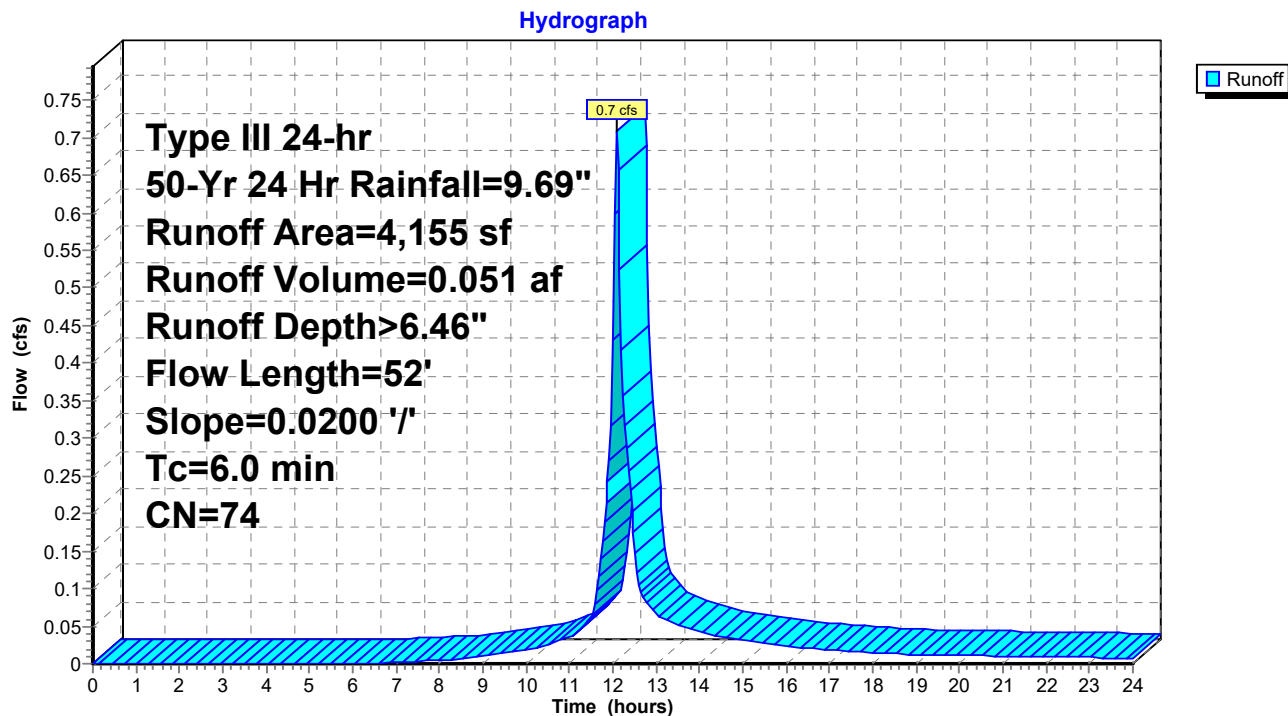
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Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

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Subcatchment SC-101: Subcatchment 101



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Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

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Summary for Subcatchment SC-201: Subcatchment 201

Runoff = 1.6 cfs @ 12.13 hrs, Volume= 0.128 af, Depth> 5.55"
 Routed to Reach DP-2 : Design Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

Area (sf)	CN	Description
4,295	39	>75% Grass cover, Good, HSG A
* 791	96	Proposed Stone Dust Walkway
6,455	80	>75% Grass cover, Good, HSG D
* 218	98	Existing Roof
* 322	98	Existing Roof
12,081	67	Weighted Average
11,541		95.53% Pervious Area
540		4.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.0570	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
4.8	89	0.0700	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
1.0	26	0.3300	0.4		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
9.1	165	Total			

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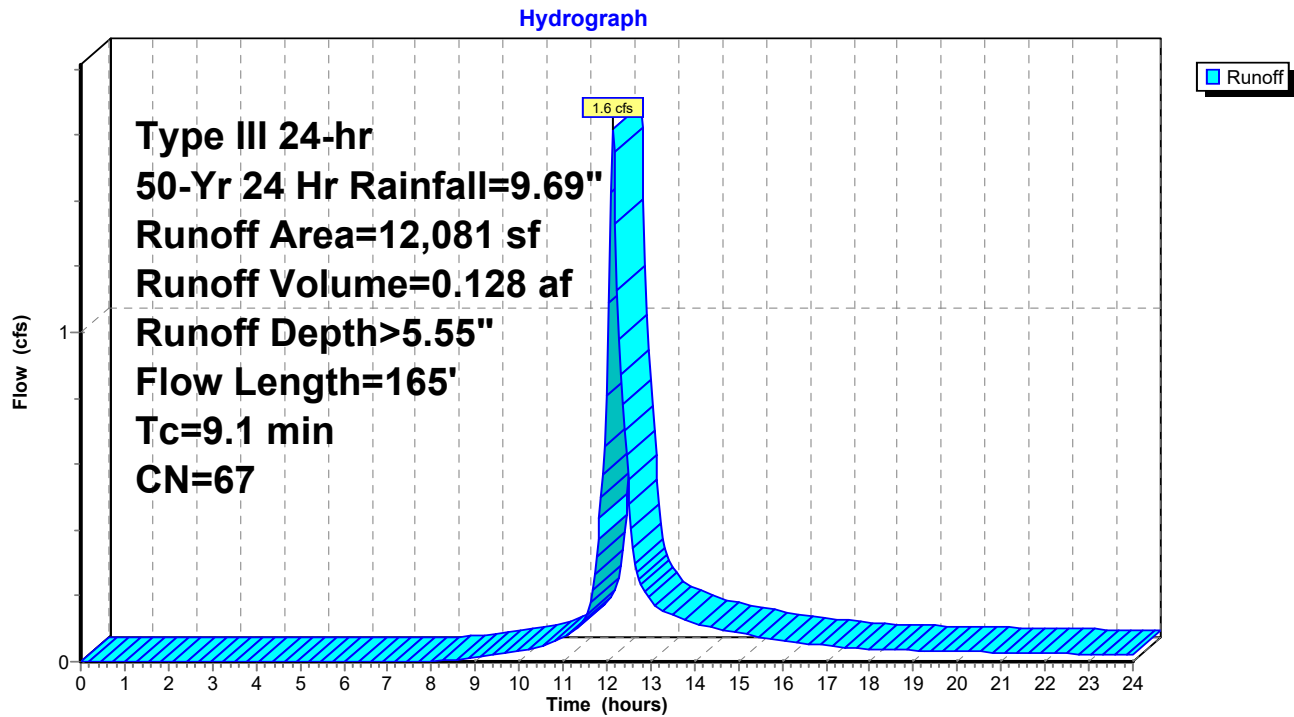
Proposed Conditions

Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

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Subcatchment SC-201: Subcatchment 201



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Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

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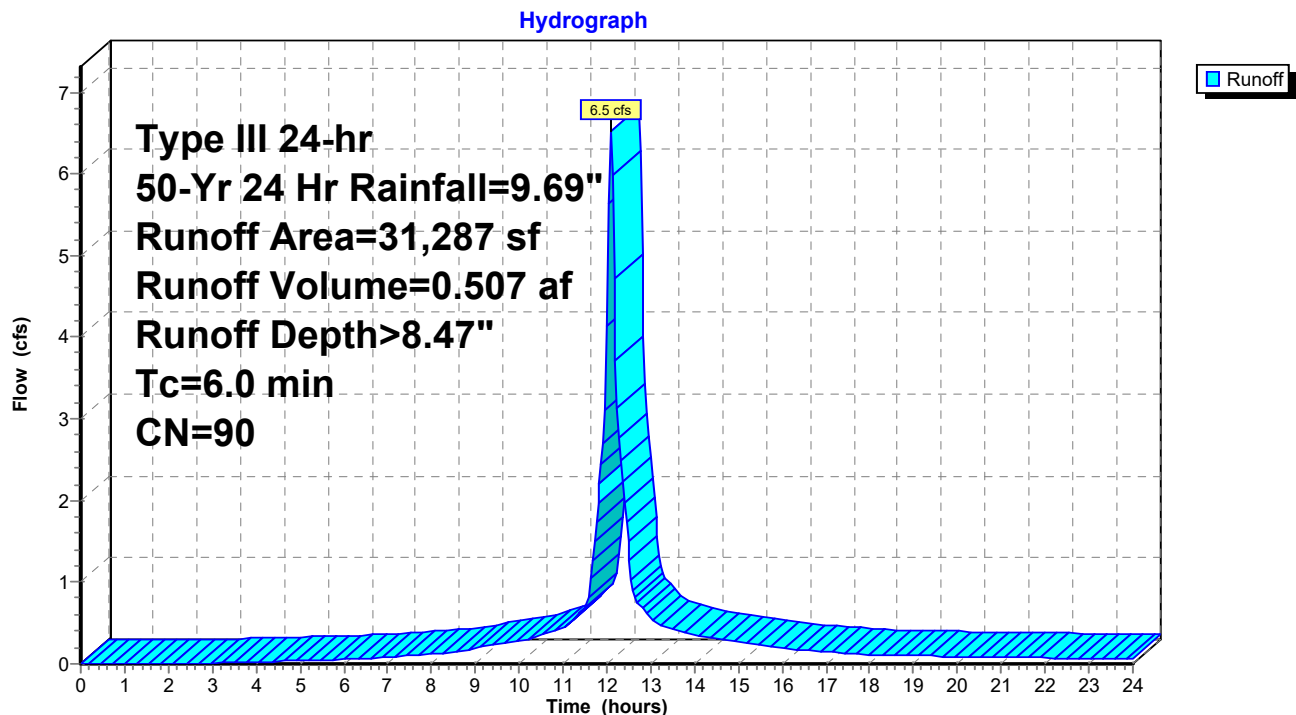
Summary for Subcatchment SC-202: Subcatchment 202

Runoff = 6.5 cfs @ 12.08 hrs, Volume= 0.507 af, Depth> 8.47"
Routed to Pond PSIS : PSIS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

	Area (sf)	CN	Description
*	24,400	98	Proposed Roof Area
	3,872	39	>75% Grass cover, Good, HSG A
	1,583	80	>75% Grass cover, Good, HSG D
*	720	96	Proposed Stone Dust Walkway
*	712	98	Proposed Bit. Conc. Walkway
	31,287	90	Weighted Average
	6,175		19.74% Pervious Area
	25,112		80.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Standard

Subcatchment SC-202: Subcatchment 202

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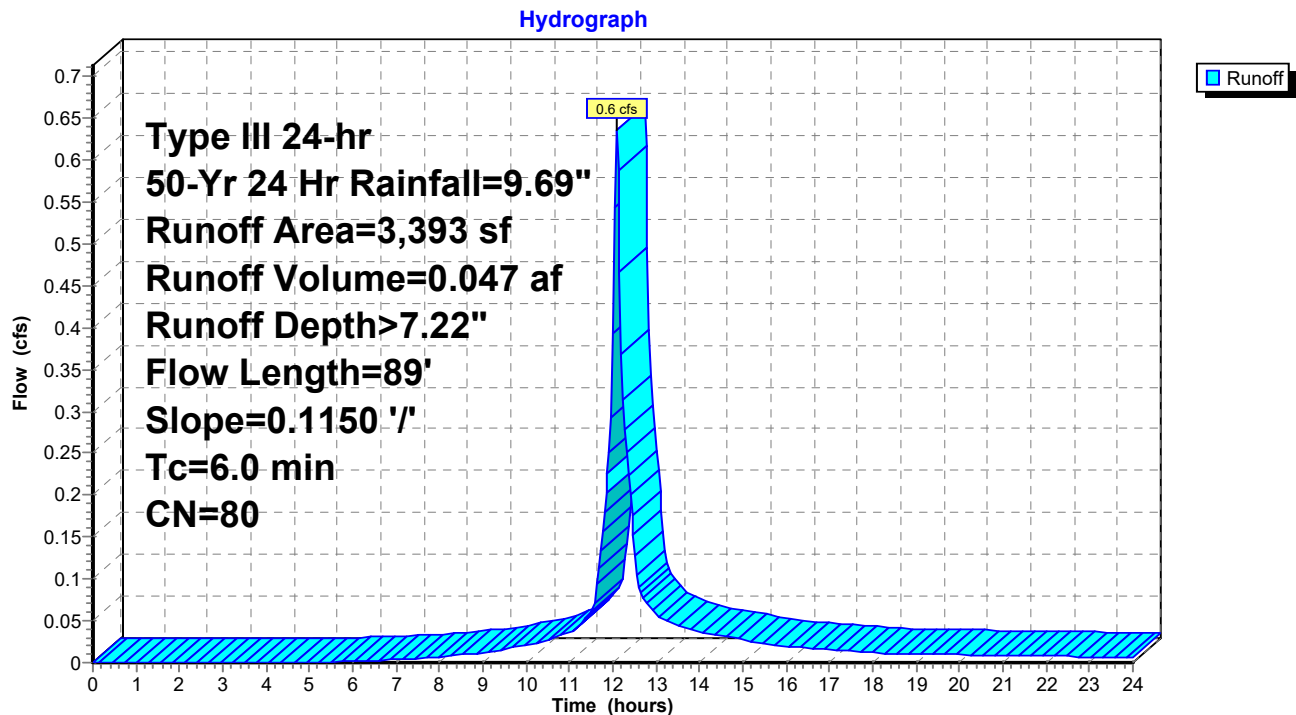
Summary for Subcatchment SC-301: Subcatchment 301

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 0.047 af, Depth> 7.22"
 Routed to Reach DP-3 : Design Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

Area (sf)	CN	Description
3,393	80	>75% Grass cover, Good, HSG D
3,393		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1150	0.2		Sheet Flow,
					Grass: Dense n= 0.240 P2= 4.01"
0.4	39	0.1150	1.7		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
2.0					Direct Entry, Min. Engineering Practice
6.0	89	Total			

Subcatchment SC-301: Subcatchment 301

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Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

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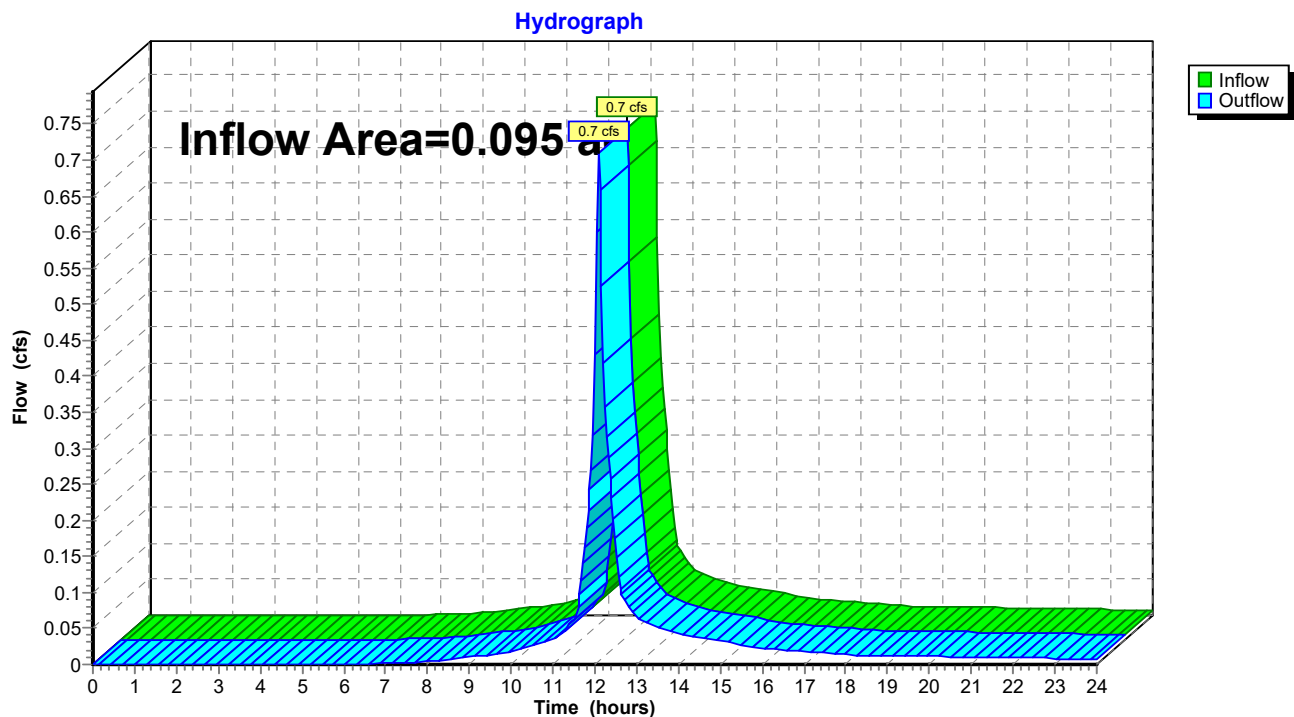
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Summary for Reach DP-1: Design Point 1

Inflow Area = 0.095 ac, 59.23% Impervious, Inflow Depth > 6.46" for 50-Yr 24 Hr event
Inflow = 0.7 cfs @ 12.09 hrs, Volume= 0.051 af
Outflow = 0.7 cfs @ 12.09 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-1: Design Point 1



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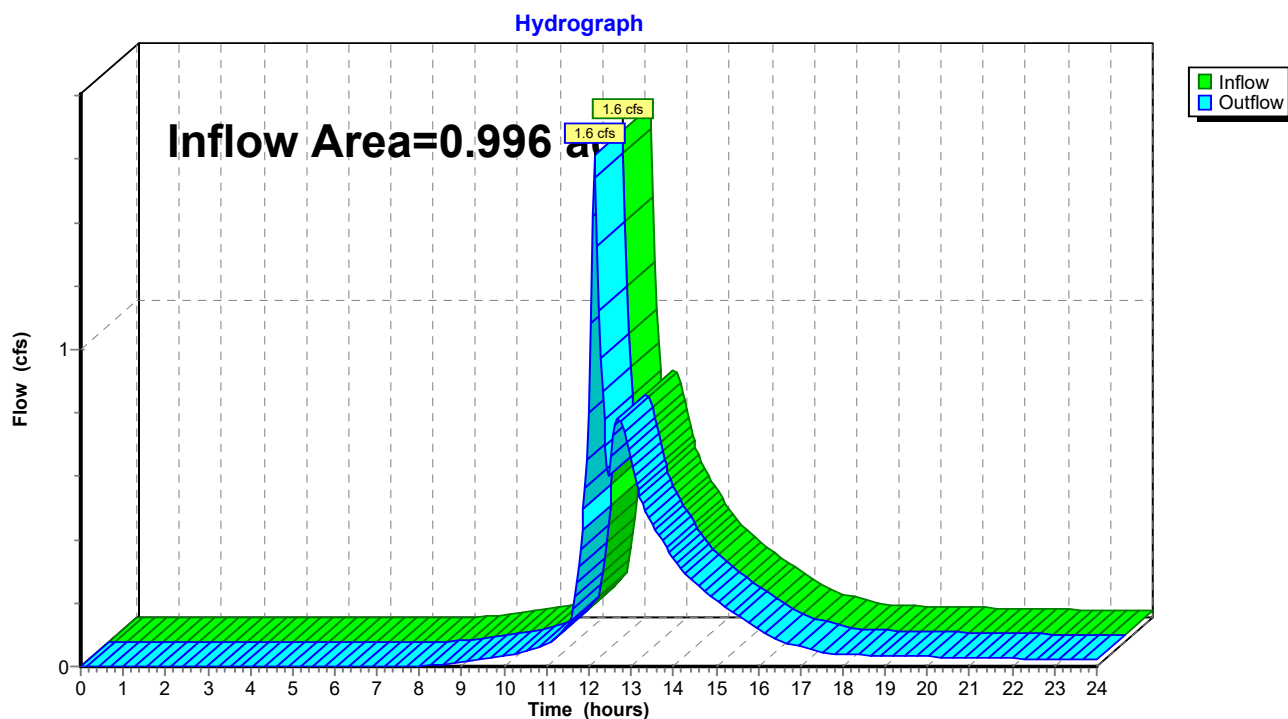
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Summary for Reach DP-2: Design Point 2

Inflow Area = 0.996 ac, 59.15% Impervious, Inflow Depth > 2.38" for 50-Yr 24 Hr event
Inflow = 1.6 cfs @ 12.13 hrs, Volume= 0.198 af
Outflow = 1.6 cfs @ 12.13 hrs, Volume= 0.198 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-2: Design Point 2



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Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

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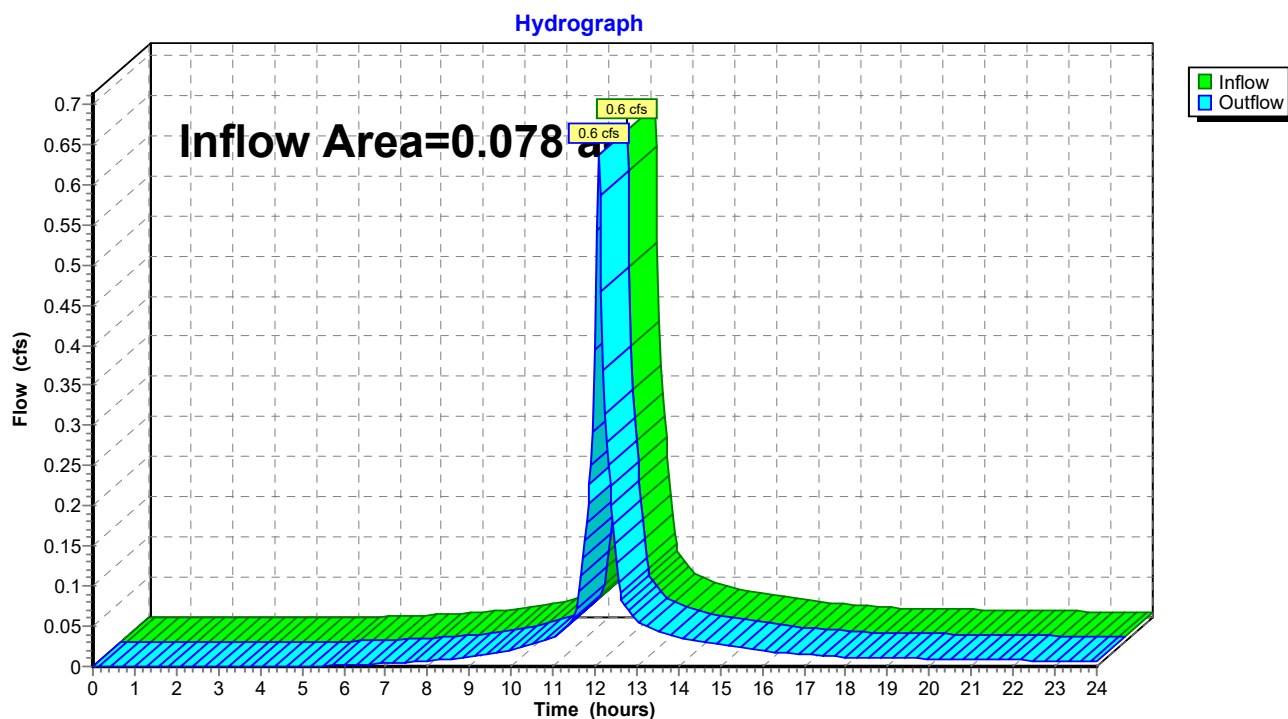
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Summary for Reach DP-3: Design Point 3

Inflow Area = 0.078 ac, 0.00% Impervious, Inflow Depth > 7.22" for 50-Yr 24 Hr event
Inflow = 0.6 cfs @ 12.09 hrs, Volume= 0.047 af
Outflow = 0.6 cfs @ 12.09 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-3: Design Point 3



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Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

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Summary for Pond PSIS: PSIS

Inflow Area = 0.718 ac, 80.26% Impervious, Inflow Depth > 8.47" for 50-Yr 24 Hr event
 Inflow = 6.5 cfs @ 12.08 hrs, Volume= 0.507 af
 Outflow = 0.7 cfs @ 12.77 hrs, Volume= 0.308 af, Atten= 89%, Lag= 41.4 min
 Discarded = 0.2 cfs @ 8.76 hrs, Volume= 0.238 af
 Primary = 0.5 cfs @ 12.77 hrs, Volume= 0.070 af
 Routed to Reach DP-2 : Design Point 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Peak Elev= 87.09' @ 12.77 hrs Surf.Area= 2,958 sf Storage= 11,058 cf

Plug-Flow detention time= 226.5 min calculated for 0.308 af (61% of inflow)
 Center-of-Mass det. time= 122.8 min (892.9 - 770.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	81.50'	5,019 cf	83.00'W x 35.64'L x 6.75'H Field A 19,968 cf Overall - 7,420 cf Embedded = 12,548 cf x 40.0% Voids
#2A	82.25'	7,420 cf	ADS_StormTech MC-4500 b +Cap x 63 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 63 Chambers in 9 Rows Cap Storage= 39.5 cf x 2 x 9 rows = 711.0 cf
		12,439 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	81.50'	2.410 in/hr Exfiltration over Surface area
#2	Device 3	86.67'	6.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	86.67'	12.0" Round Culvert L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 86.67' / 86.50' S= 0.0340 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.2 cfs @ 8.76 hrs HW=81.57' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=0.5 cfs @ 12.77 hrs HW=87.09' (Free Discharge)
 ↑ **3=Culvert** (Inlet Controls 0.5 cfs @ 1.7 fps)
 ↑ **2=Orifice/Grate** (Passes 0.5 cfs of 0.8 cfs potential flow)

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Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

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Pond PSIS: PSIS - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech®MC-4500 with cap volume)

Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf

Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap

Cap Storage= 39.5 cf x 2 x 9 rows = 711.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

7 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 33.64' Row Length +12.0" End Stone x 2 = 35.64' Base Length

9 Rows x 100.0" Wide + 9.0" Spacing x 8 + 12.0" Side Stone x 2 = 83.00' Base Width

9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

63 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 9 Rows = 7,419.9 cf Chamber Storage

19,968.2 cf Field - 7,419.9 cf Chambers = 12,548.3 cf Stone x 40.0% Voids = 5,019.3 cf Stone Storage

Chamber Storage + Stone Storage = 12,439.2 cf = 0.286 af

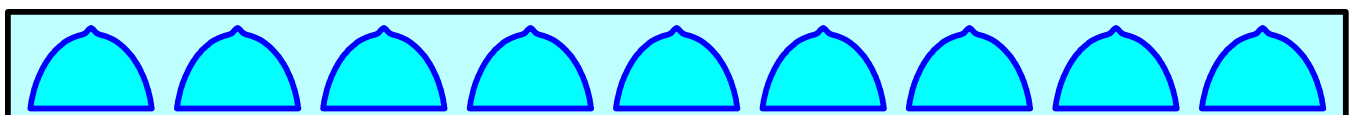
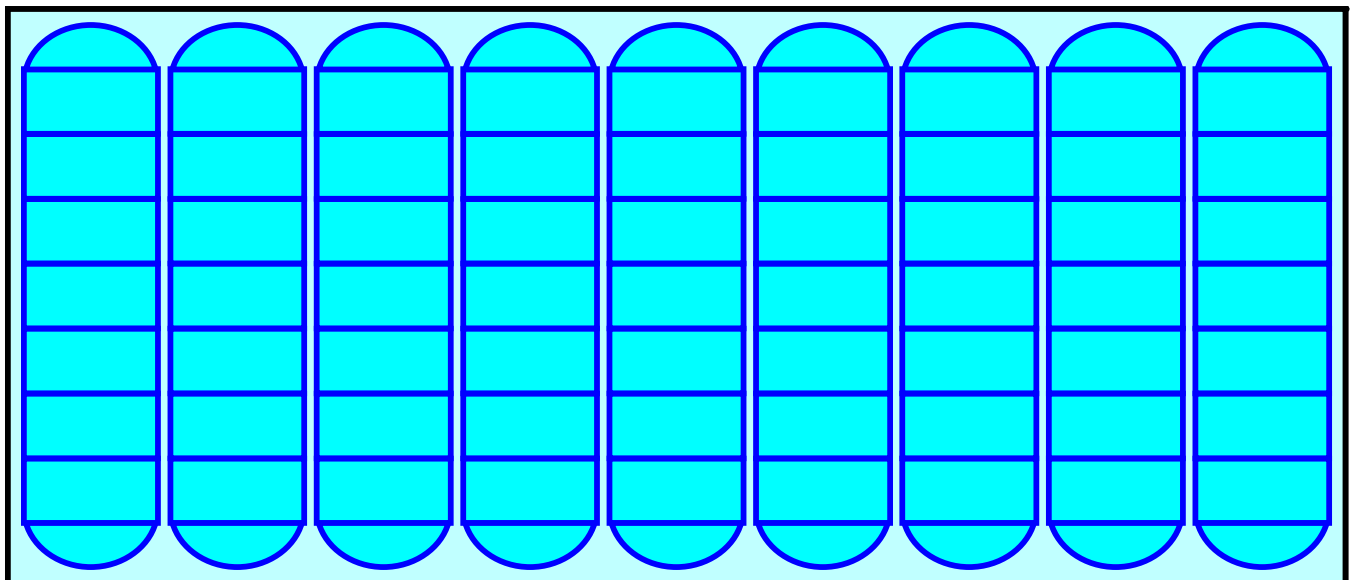
Overall Storage Efficiency = 62.3%

Overall System Size = 35.64' x 83.00' x 6.75'

63 Chambers

739.6 cy Field

464.8 cy Stone



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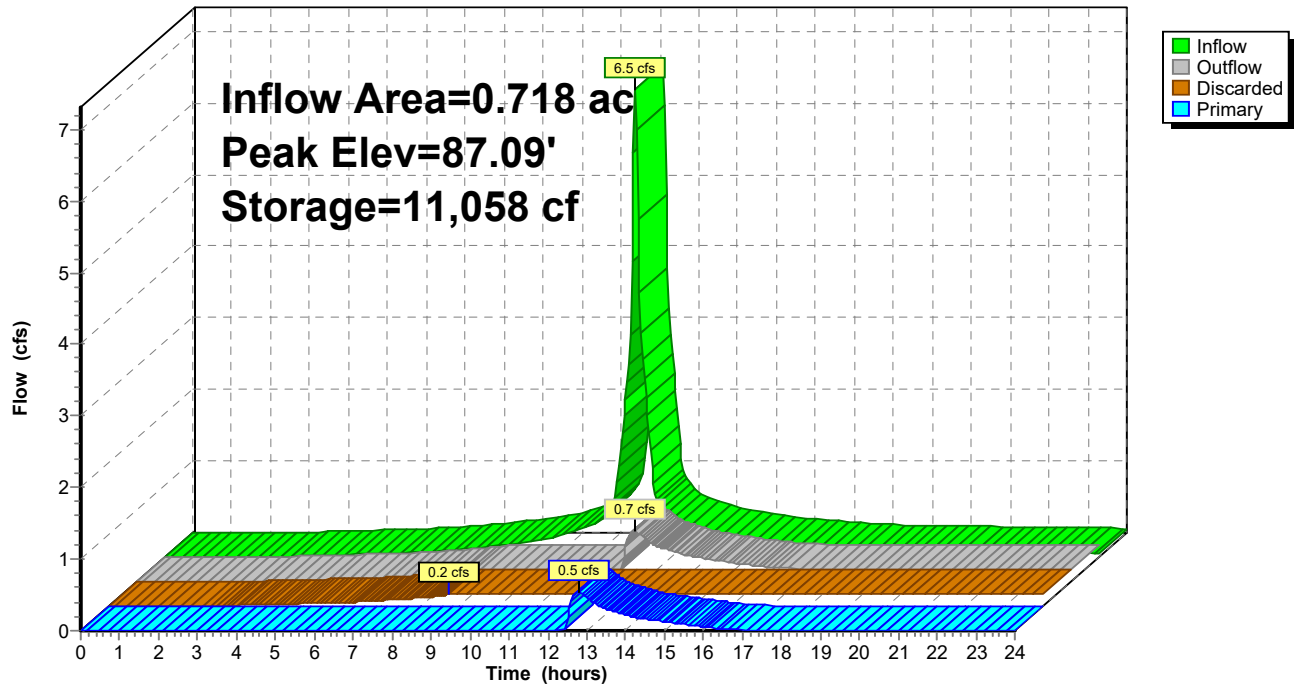
Type III 24-hr 50-Yr 24 Hr Rainfall=9.69"

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Pond PSIS: PSIS

Hydrograph



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Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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Summary for Subcatchment SC-101: Subcatchment 101

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 0.065 af, Depth> 8.14"
 Routed to Reach DP-1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

Area (sf)	CN	Description
1,288	39	>75% Grass cover, Good, HSG A
* 2,243	98	Proposed Driveway
* 218	98	Existing Roof
406	39	>75% Grass cover, Good, HSG A
4,155	74	Weighted Average
1,694		40.77% Pervious Area
2,461		59.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	25	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
0.4	25	0.0200	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.01"
0.0	2	0.0200	2.9		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.7					Direct Entry, Min. Engineering Practice
6.0	52	Total			

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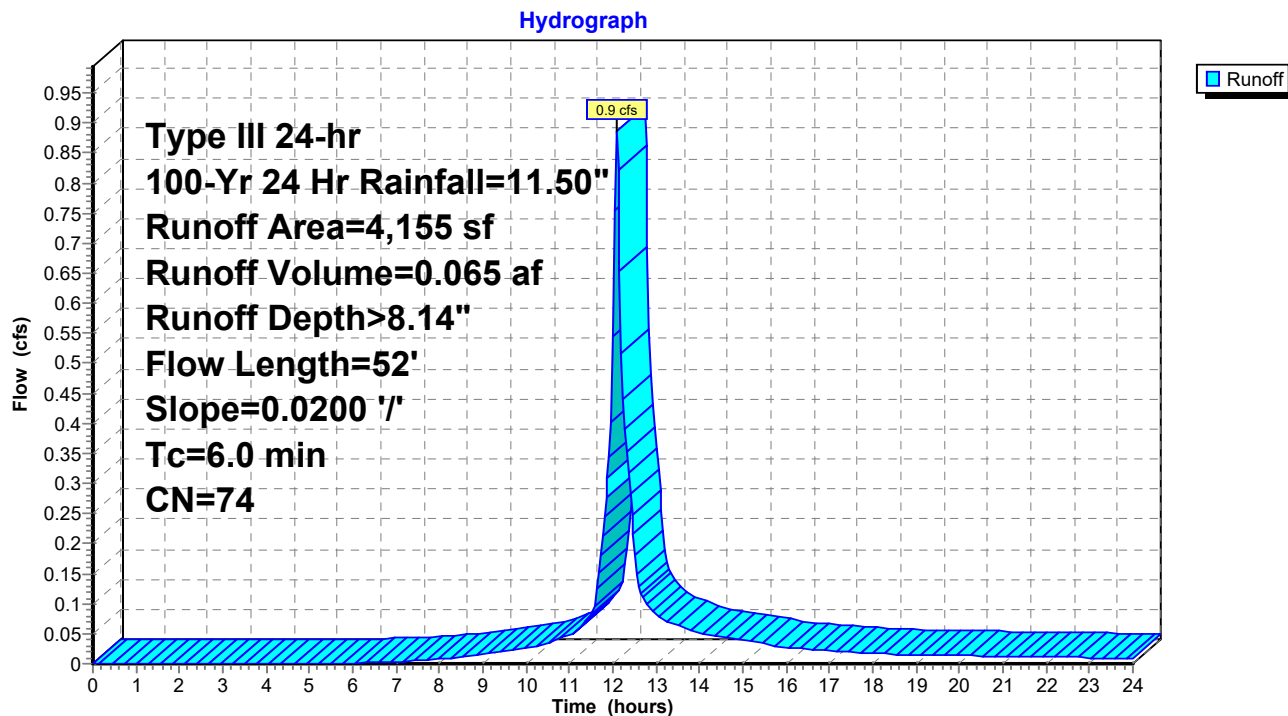
Proposed Conditions

Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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Subcatchment SC-101: Subcatchment 101



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Proposed Conditions

Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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Summary for Subcatchment SC-201: Subcatchment 201

Runoff = 2.1 cfs @ 12.13 hrs, Volume= 0.165 af, Depth> 7.15"
 Routed to Reach DP-2 : Design Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

Area (sf)	CN	Description
4,295	39	>75% Grass cover, Good, HSG A
* 791	96	Proposed Stone Dust Walkway
6,455	80	>75% Grass cover, Good, HSG D
* 218	98	Existing Roof
* 322	98	Existing Roof
12,081	67	Weighted Average
11,541		95.53% Pervious Area
540		4.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.0570	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
4.8	89	0.0700	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
1.0	26	0.3300	0.4		Sheet Flow, Grass: Short n= 0.150 P2= 4.01"
9.1	165	Total			

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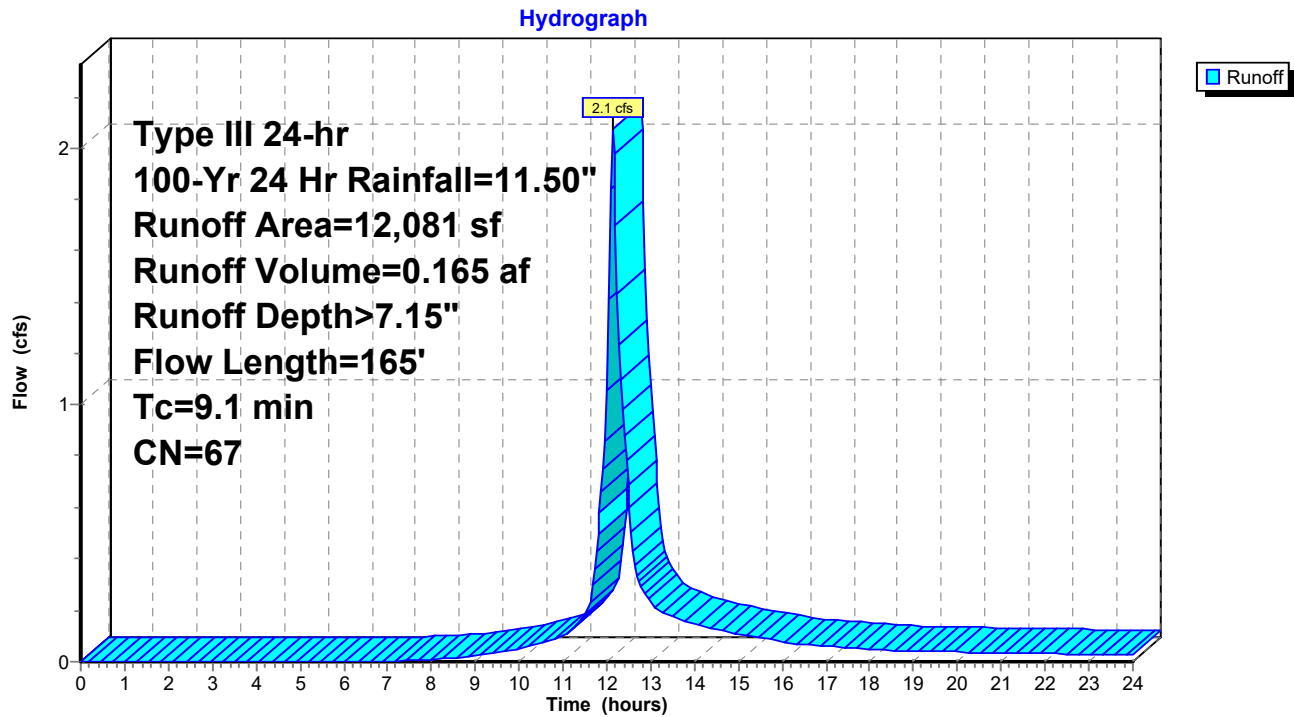
Proposed Conditions

Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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Subcatchment SC-201: Subcatchment 201



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Proposed Conditions

Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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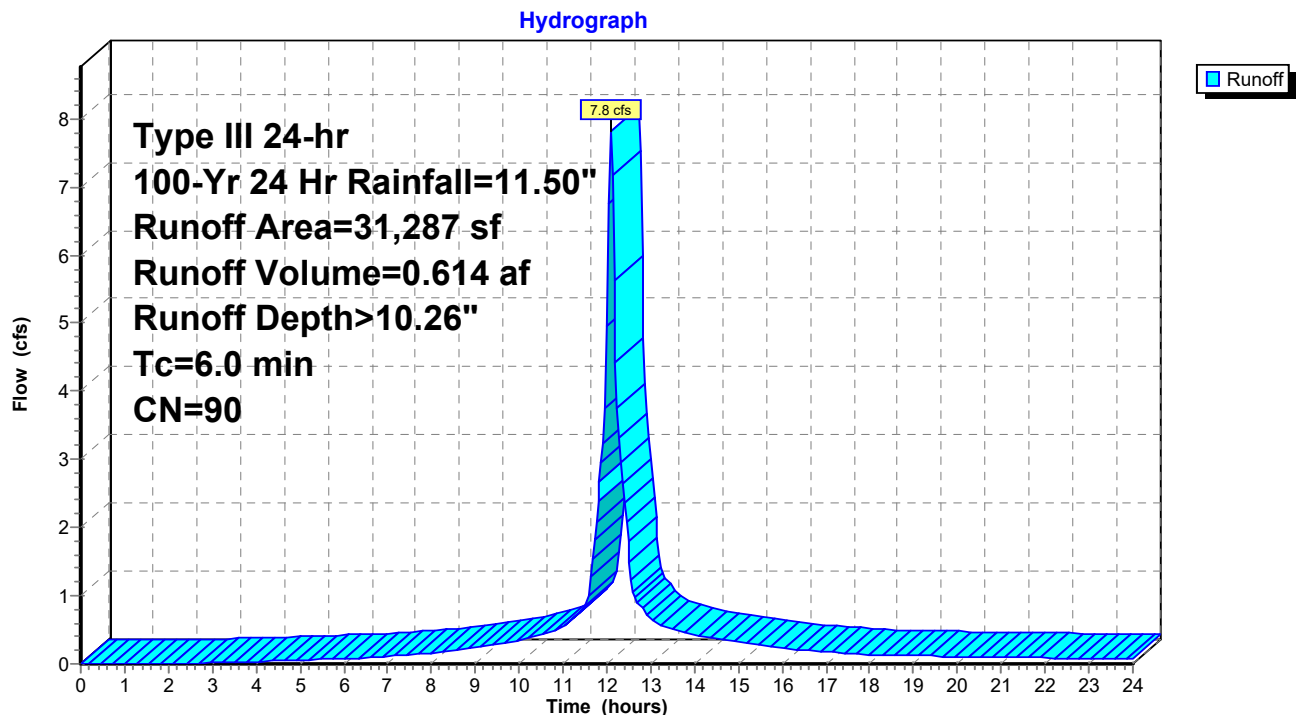
Summary for Subcatchment SC-202: Subcatchment 202

Runoff = 7.8 cfs @ 12.08 hrs, Volume= 0.614 af, Depth>10.26"
Routed to Pond PSIS : PSIS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

	Area (sf)	CN	Description
*	24,400	98	Proposed Roof Area
	3,872	39	>75% Grass cover, Good, HSG A
	1,583	80	>75% Grass cover, Good, HSG D
*	720	96	Proposed Stone Dust Walkway
*	712	98	Proposed Bit. Conc. Walkway
	31,287	90	Weighted Average
	6,175		19.74% Pervious Area
	25,112		80.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Standard

Subcatchment SC-202: Subcatchment 202

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Proposed Conditions

Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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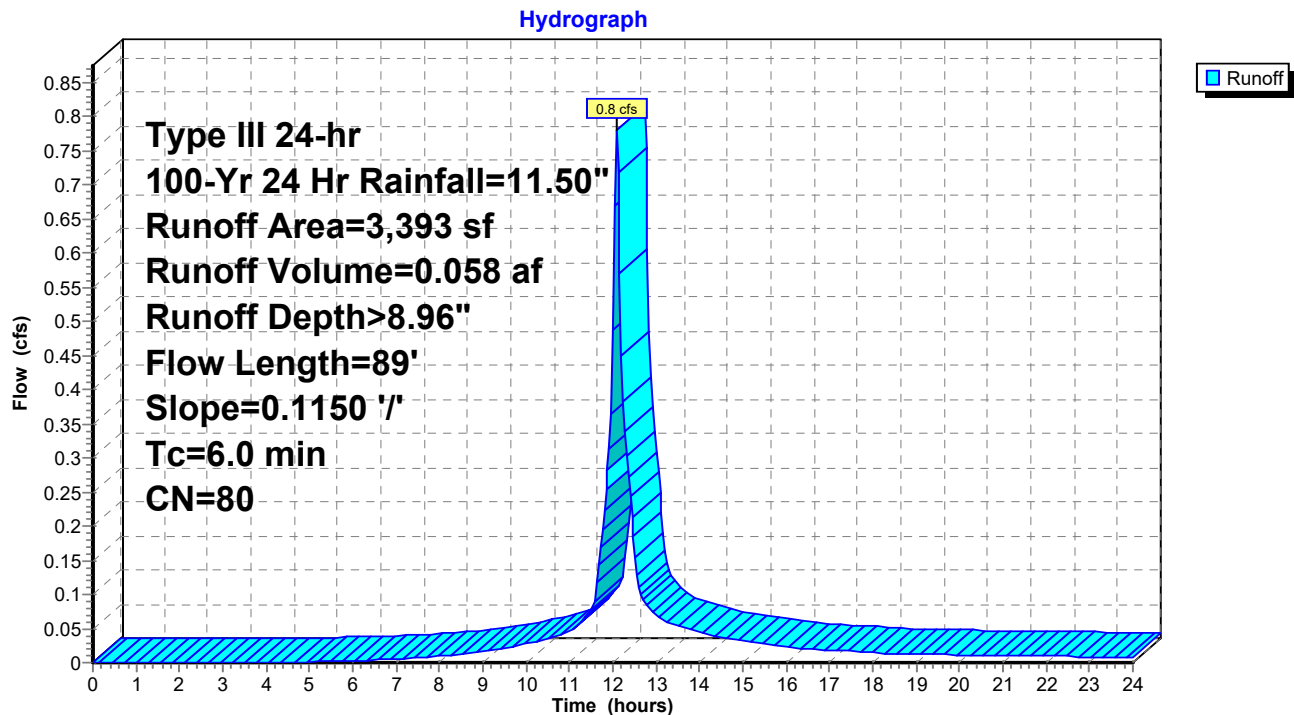
Summary for Subcatchment SC-301: Subcatchment 301

Runoff = 0.8 cfs @ 12.09 hrs, Volume= 0.058 af, Depth> 8.96"
 Routed to Reach DP-3 : Design Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

Area (sf)	CN	Description
3,393	80	>75% Grass cover, Good, HSG D
3,393		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1150	0.2		Sheet Flow,
					Grass: Dense n= 0.240 P2= 4.01"
0.4	39	0.1150	1.7		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
2.0					Direct Entry, Min. Engineering Practice
6.0	89	Total			

Subcatchment SC-301: Subcatchment 301

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Proposed Conditions

Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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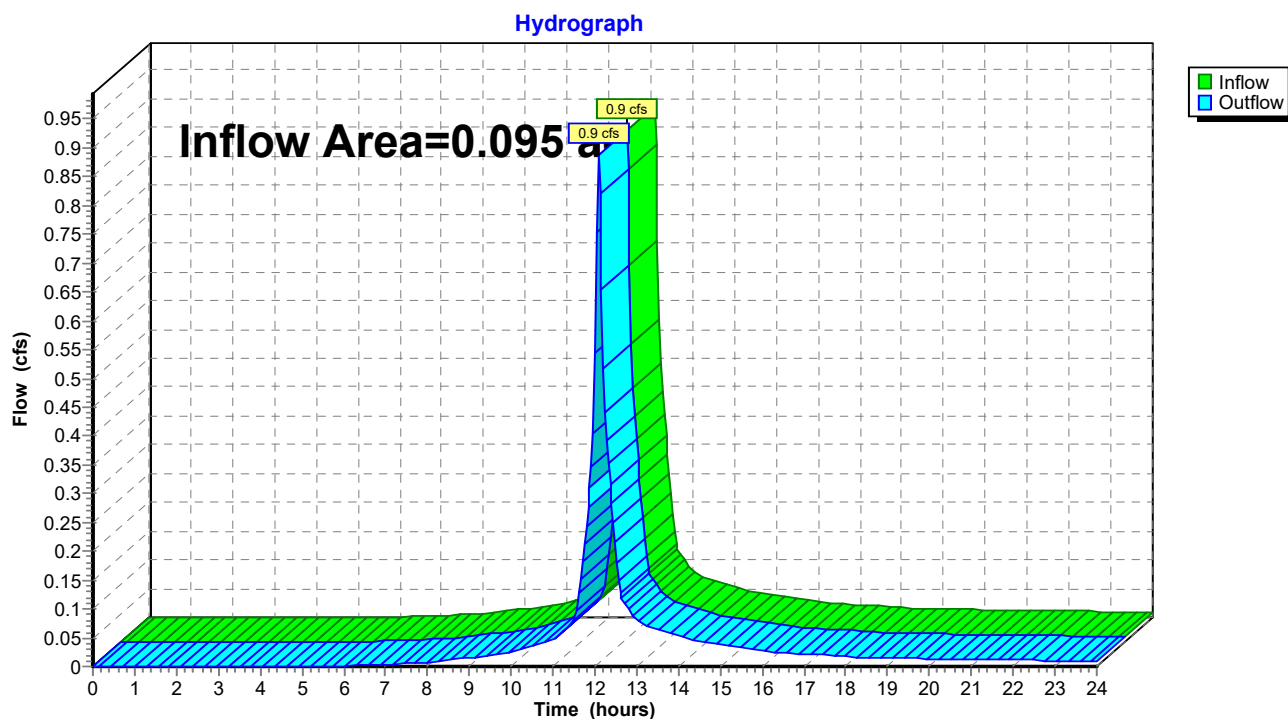
Page 45

Summary for Reach DP-1: Design Point 1

Inflow Area = 0.095 ac, 59.23% Impervious, Inflow Depth > 8.14" for 100-Yr 24 Hr event
Inflow = 0.9 cfs @ 12.09 hrs, Volume= 0.065 af
Outflow = 0.9 cfs @ 12.09 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-1: Design Point 1



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Proposed Conditions

Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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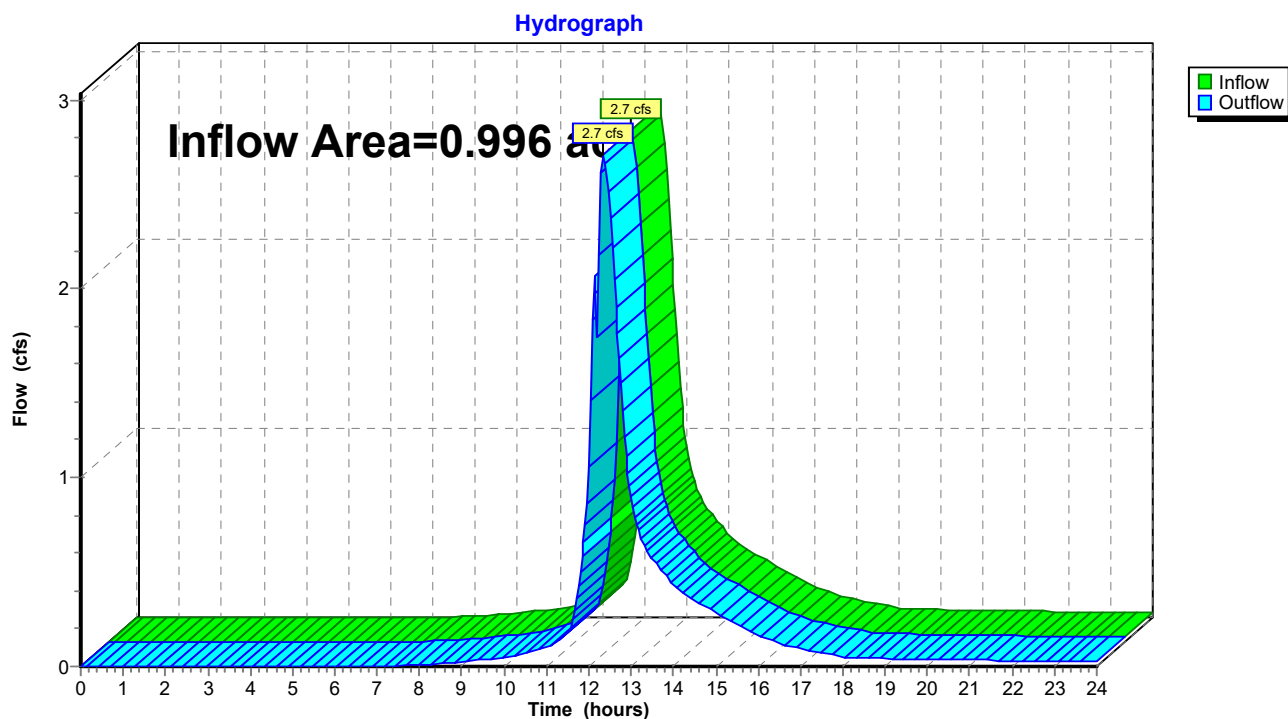
Page 46

Summary for Reach DP-2: Design Point 2

Inflow Area = 0.996 ac, 59.15% Impervious, Inflow Depth > 3.88" for 100-Yr 24 Hr event
Inflow = 2.7 cfs @ 12.35 hrs, Volume= 0.322 af
Outflow = 2.7 cfs @ 12.35 hrs, Volume= 0.322 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-2: Design Point 2



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Proposed Conditions

Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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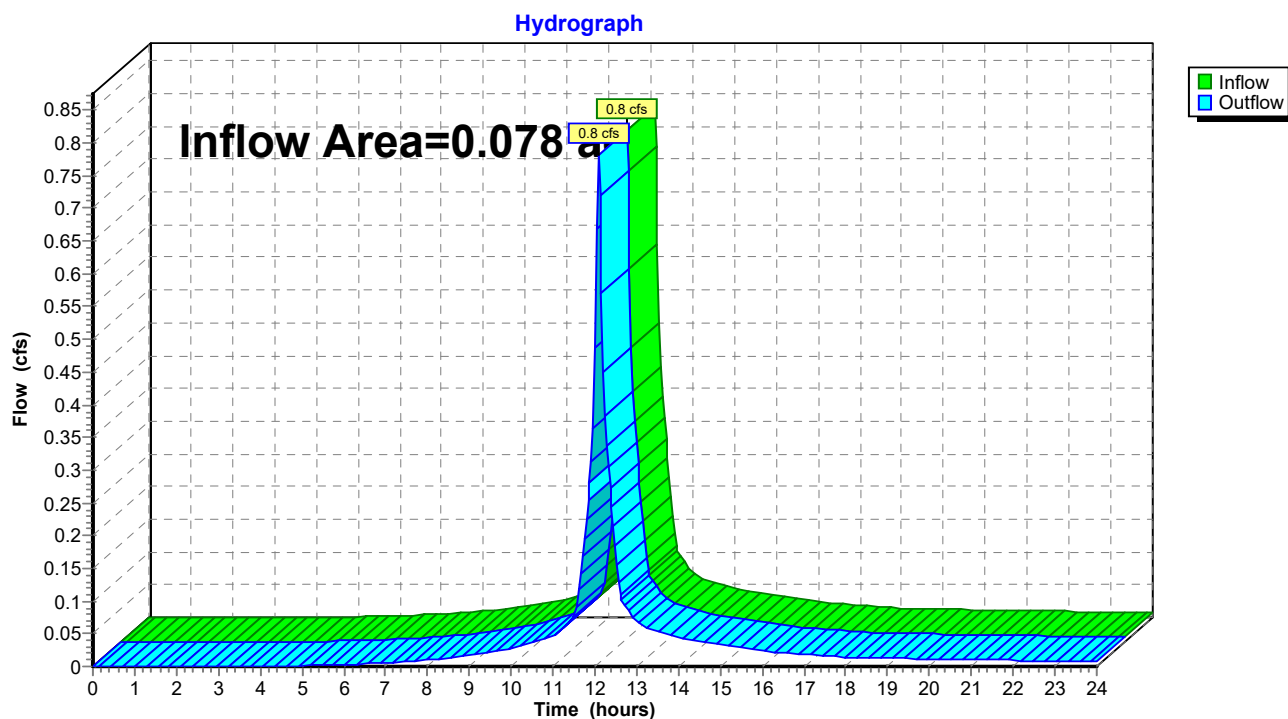
Page 47

Summary for Reach DP-3: Design Point 3

Inflow Area = 0.078 ac, 0.00% Impervious, Inflow Depth > 8.96" for 100-Yr 24 Hr event
Inflow = 0.8 cfs @ 12.09 hrs, Volume= 0.058 af
Outflow = 0.8 cfs @ 12.09 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Reach DP-3: Design Point 3



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Proposed Conditions

Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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Summary for Pond PSIS: PSIS

Inflow Area = 0.718 ac, 80.26% Impervious, Inflow Depth > 10.26" for 100-Yr 24 Hr event
 Inflow = 7.8 cfs @ 12.08 hrs, Volume= 0.614 af
 Outflow = 2.0 cfs @ 12.45 hrs, Volume= 0.405 af, Atten= 75%, Lag= 22.1 min
 Discarded = 0.2 cfs @ 8.28 hrs, Volume= 0.248 af
 Primary = 1.8 cfs @ 12.45 hrs, Volume= 0.157 af
 Routed to Reach DP-2 : Design Point 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
 Peak Elev= 87.85' @ 12.45 hrs Surf.Area= 2,958 sf Storage= 11,971 cf

Plug-Flow detention time= 188.3 min calculated for 0.405 af (66% of inflow)
 Center-of-Mass det. time= 90.6 min (856.1 - 765.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	81.50'	5,019 cf	83.00'W x 35.64'L x 6.75'H Field A 19,968 cf Overall - 7,420 cf Embedded = 12,548 cf x 40.0% Voids
#2A	82.25'	7,420 cf	ADS_StormTech MC-4500 b +Capx 63 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 63 Chambers in 9 Rows Cap Storage= 39.5 cf x 2 x 9 rows = 711.0 cf
		12,439 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	81.50'	2.410 in/hr Exfiltration over Surface area
#2	Device 3	86.67'	6.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	86.67'	12.0" Round Culvert L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 86.67' / 86.50' S= 0.0340 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.2 cfs @ 8.28 hrs HW=81.57' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=1.8 cfs @ 12.45 hrs HW=87.85' (Free Discharge)
 ↑ **3=Culvert** (Passes 1.8 cfs of 2.5 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 1.8 cfs @ 4.6 fps)

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Proposed Conditions

Type III 24-hr 100-Yr 24 Hr Rainfall=11.50"

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Pond PSIS: PSIS - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech®MC-4500 with cap volume)

Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf

Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap

Cap Storage= 39.5 cf x 2 x 9 rows = 711.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

7 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 33.64' Row Length +12.0" End Stone x 2 = 35.64' Base Length

9 Rows x 100.0" Wide + 9.0" Spacing x 8 + 12.0" Side Stone x 2 = 83.00' Base Width

9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

63 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 9 Rows = 7,419.9 cf Chamber Storage

19,968.2 cf Field - 7,419.9 cf Chambers = 12,548.3 cf Stone x 40.0% Voids = 5,019.3 cf Stone Storage

Chamber Storage + Stone Storage = 12,439.2 cf = 0.286 af

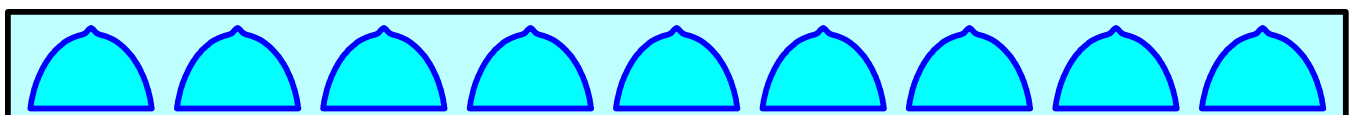
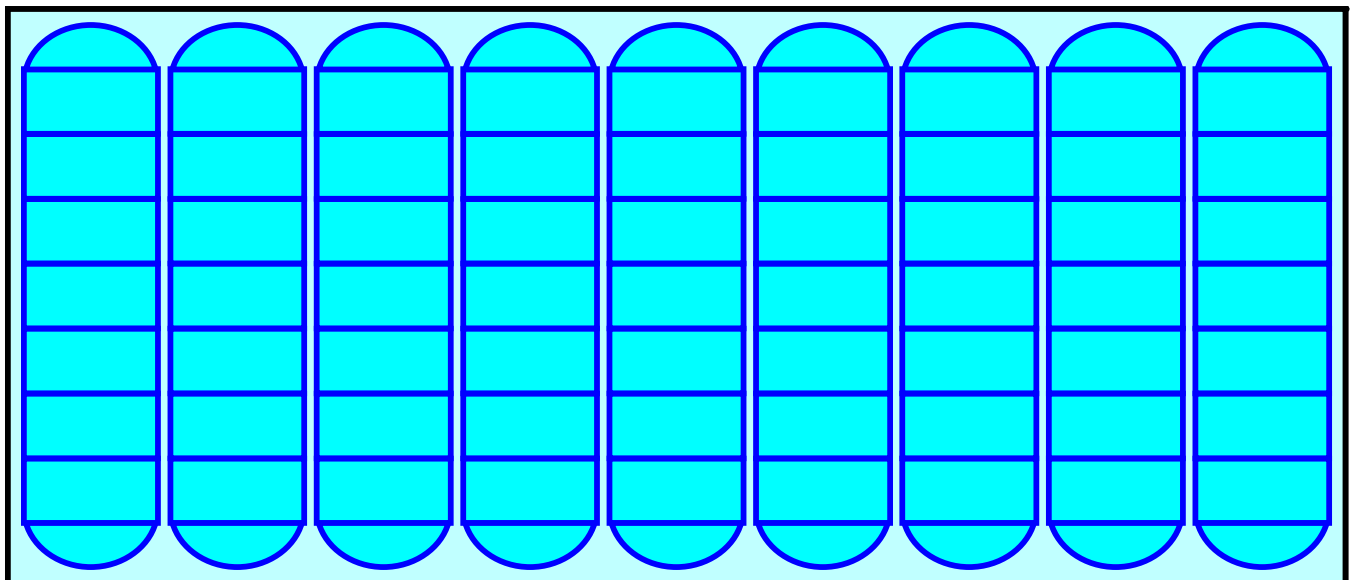
Overall Storage Efficiency = 62.3%

Overall System Size = 35.64' x 83.00' x 6.75'

63 Chambers

739.6 cy Field

464.8 cy Stone



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Proposed Conditions

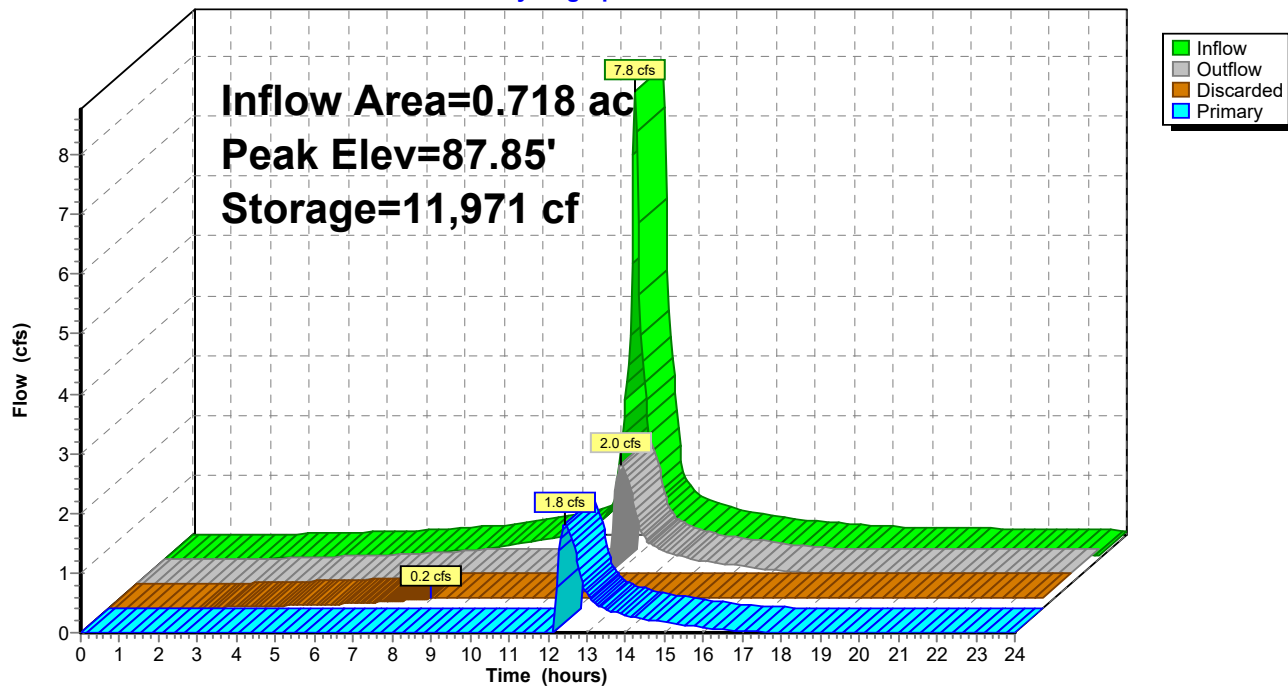
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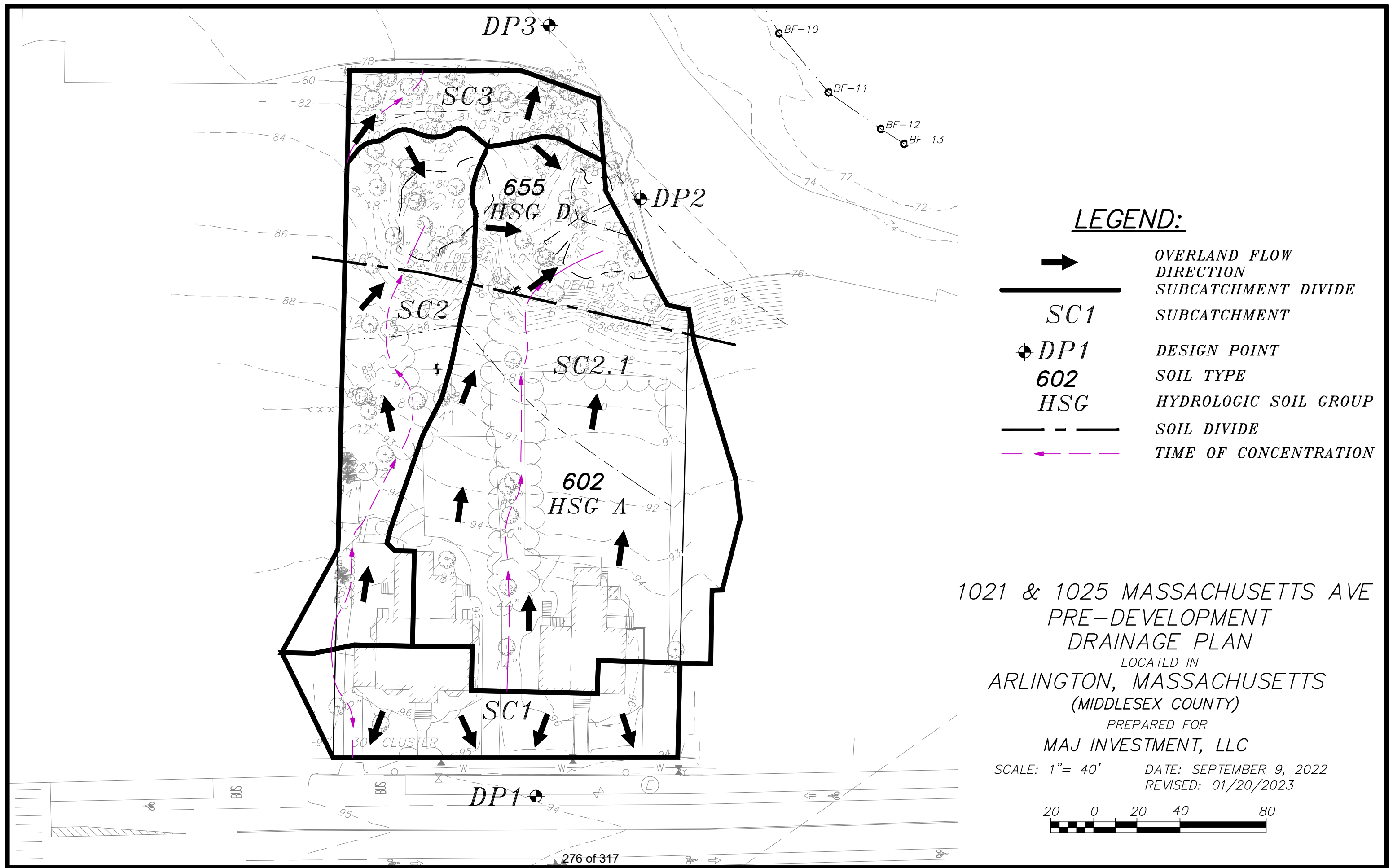
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Pond PSIS: PSIS

Hydrograph





LEGEND:

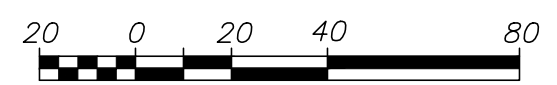
-  OVERLAND FLOW DIRECTION
-  SUBCATCHMENT DIVIDE
-  SUBCATCHMENT
-  DESIGN POINT
-  SOIL TYPE
-  HYDROLOGIC SOIL GROUP
-  SOIL DIVIDE
-  TIME OF CONCENTRATION

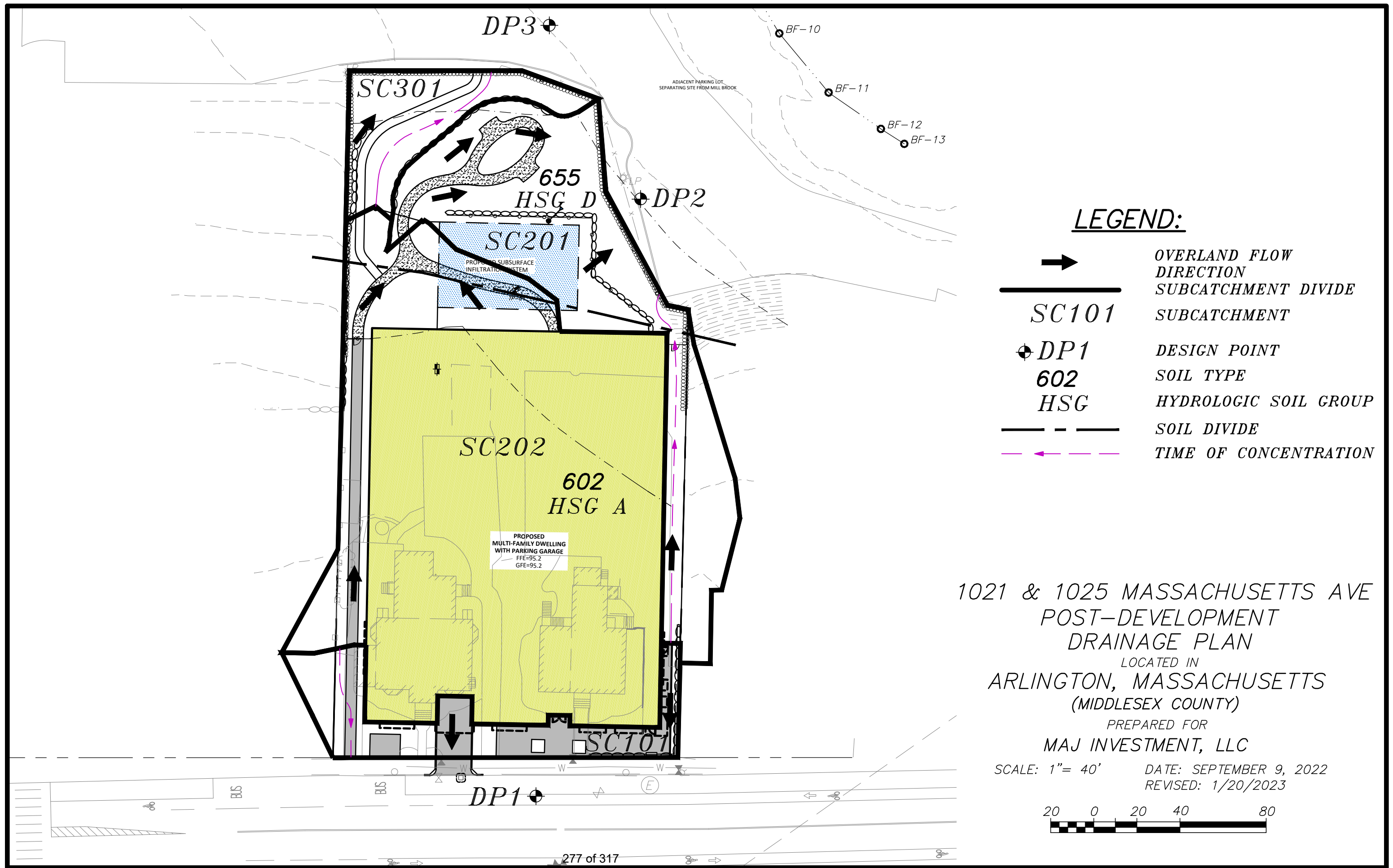
1021 & 1025 MASSACHUSETTS AVE
PRE-DEVELOPMENT
DRAINAGE PLAN

LOCATED IN
ARLINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
MAJ INVESTMENT, LLC

SCALE: 1"= 40' DATE: SEPTEMBER 9, 2022
REVISED: 01/20/2023

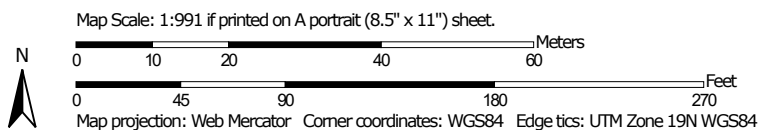




Soil Map—Middlesex County, Massachusetts
(1021-1025 Massachusetts Ave, Arlington Ma)



Soil Map may not be valid at this scale.



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts

Survey Area Data: Version 21, Sep 2, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 13, 2020—Sep 15, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
602	Urban land	3.4	72.4%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	0.3	6.8%
655	Udorthents, wet substratum	1.0	20.8%
Totals for Area of Interest		4.7	100.0%

INSTRUCTIONS:

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Location: 1021 & 1025 Massachusetts Avenue, Arlington MA

Train 1: PSIS

**TSS Removal
Calculation**

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Proposed Subsurface Infiltration System (PSIS)	80%	1.00	0.80	0.20

Total TSS Removal =

80.0%

Project: 21583

Prepared By: Patriot Engineering

Date: 1/20/2023

*Equals remaining load from previous BMP(E)
which enters the BMP

** See portion of STEP Fact Sheet for removal rate

CAPTURE AREA ADJUSTMENT

Due to a limitation of grading adjustments that can be made for this project the amount of runoff that can be directed to the infiltration facility. Therefore the storage capacity of the infiltration facilities has been increased to allow for so it may capture more of the runoff from the impervious surface within the drainage area.

The following calculation in accordance with MA Stormwater Handbook demonstrates at the storage capacity of the infiltration BMP's is sufficient to meet Standard #3.

Steps:

1. Required recharge volume for total site impervious area.

From Standard #3 recharge calculations page, summation
of required recharge volume = 1,388 CF

2. Site impervious area draining to recharge facilities (from previous).

Area = 27,765 SF

3. Divide total site impervious area by impervious area draining to recharge facilities. Roof runoff captured completely within infiltration systems on each lot.

Total Site Impervious = 27,765 SF

$27,748 \text{ SF} / 25,522 \text{ SF} = 1.09$

4. Multiply result of #3 by original recharge volume in #1.

$1.09 \times 1,388 = 1,509 \text{ CF}$

5. Ensure minimum 65% impervious area draining to recharge facilities.

$25,552 \text{ SF} / 27,765 \text{ SF} = 0.92 = 92\%$

6. Recharge facilities provide total recharge volume of 10,498 CF (below to outlet).
Recharge volume 10,498 CF > 1,509 CF adjusted total recharge volume.

All Recharge Volumes have been achieved as required by the Massachusetts Stormwater Management Standards

72-HOUR DRAW DOWN CALCULATIONS

$$\text{Time} = \frac{R_v}{(K)(\text{BottomArea})(n)}$$

R_v = Storage Volume

K = Saturated Hydraulic Conductivity for Sandy Loam = 1.02 in/hour

Bottom Area = Bottom Area of Recharge Structure

n = Porosity (1)

PSIS-1

R_v = 12,209 cf

Bottom Area = 2,932 sf

Time = 12,209cf / (2.41 in/hr)(1'/12")(2,932 sf)(1)

Time = 20.7 hours

20.7 hours < 72 hours

**OPERATION AND MAINTENANCE &
EROSION AND SEDIMENTATION CONTROL PROGRAM**
for
A PROPOSED STORMWATER MANAGEMENT SYSTEM
located at
**1021 & 1025 MASSACHUSETTS AVENUE
ARLINGTON, MASSACHUSETTS**

Applicant:

1025 Mass Ave., LLC
13 Wheeling Avenue
Woburn, Massachusetts 01801

Prepared by:

Patriot Engineering
35 Bedford Street, Suite 4
Lexington, Massachusetts 02420
(978) 726-2654

September 9, 2022
Revised: 04/14/2023

Project Name: 1021 & 1025 Massachusetts Ave, Arlington Ma

Owner Name: The Maggiore Companies

Party Responsible for Maintenance

During Construction: Contractor

Party Responsible for Maintenance

After Construction: Homeowner's Association

Erosion and Sedimentation Control Measures during Construction Activities

Filtermitt (or approved equal)

Filtermitt (or approved equal) will be installed along the down gradient limit of work as depicted on the Site Plan. The filtermitt shall be installed prior to the commencement of any work on-site and in accordance with the design plans. An additional supply of filtermitt shall be on-site to replace and/or repair any filtermitt that have been disturbed or are in poor condition. The line of filtermitt shall be inspected and maintained on a weekly basis and after every major storm event (2-year) during construction. No construction activities are to occur beyond the filtermitt at any time. Deposited sediments shall be removed when the volume of the deposition reaches approximately one-half the height of the filtermitt.

Stockpiles

All unused debris, soil, and other material shall be stockpiled in locations of relatively flat grades, away from any trees identified to be saved and upgradient of the filtermitt. Stockpile side slopes shall not be greater than 2:1. All stockpiles shall be surrounded by a row of filtermitt. Surrounding filtermitt shall be inspected and maintained on a daily basis.

Surface Stabilization

The surface of all disturbed areas shall be stabilized during and after construction. Disturbed areas remaining idle for more than 14 days shall be stabilized. Temporary measures shall be taken during construction to prevent erosion and siltation. No construction sediment shall be allowed to enter any infiltration system or formal drainage system. All disturbed slopes will be stabilized with a permanent vegetative cover. Some or all of the following measures will be utilized on this project as conditions may warrant.

- a. Temporary Seeding
- b. Temporary Mulching
- c. Permanent Seeding
- d. Placement of Sod
- e. Hydroseeding
- f. Placement of Hay
- g. Placement of Jute Netting

Dust shall be controlled at the site.

Tree Protection

Existing trees to be saved shall be protected with orange construction fence (offset from the tree trunk by professional standard based on canopy).

Construction Tracking Pad

A construction tracking pad shall be installed at the designated entrances/exits, as shown on the Site plans, to the site to reduce the amount of sediment transported off site. The construction tracking pad shall be inspected weekly.

Silt Sacks

Silt Sacks shall be installed within the basins. The performance of the basins shall be checked after every major storm event during construction, in the event of clogging within the Silt Sack, it shall be removed and replaced with a clean Silt Sack. Stormwater quality unit shall be checked bi-weekly.

Subsurface Infiltration Facility

Construction activity above and around the proposed location of the subsurface infiltration facility shall be limited to prevent compaction of the existing soil. Care shall be taken to redirect stormwater runoff from this area to prevent ponding. Installation of this system shall occur under dry weather conditions and system shall be backfilled immediately to prohibit the introduction of fines or other material that would compromise the functionality of this system.

Inspection and Maintenance of Area Drain

The performance of the area drain shall be checked after every major storm event during construction.

Removal of Sediment and Erosion Controls

At the completion of construction activities and after receiving approval from the Town of Arlington, all physical sediment and erosion controls shall be removed from the site per Town of Arlington. The areas where the controls have been removed shall be seeded and stabilized immediately upon removal.

Long-Term Inspection and Maintenance Measures after Construction

Erosion Control

Eroded sediments can adversely affect the performance of the stormwater management system. Eroding or barren areas should be immediately re-vegetated.

Subsurface Infiltration Facility

The infiltration system inspections should include inspections following the first several rainfall events or first few months after construction, after all major storms (3.2" inches of

rain over a 24-hour period or greater), and on regular bi-annual scheduled dates, to ascertain whether captured runoff drains within 72 hours following the event. Pondered water inside the system (as visible from the observation well) after several dry days often indicates that the bottom of the system is clogged. If the water does not drain, then a qualified professional should be retained to determine the cause of apparent infiltration failure and recommend corrective action. Such corrective action should be immediately implemented by the homeowner. If depth of sediment is observed to be greater than 3" then the system should be cleaned. The homeowner shall contact a sewer and drain cleaning company to flood the system via pump truck so the water is forced back to the upstream cleanout where sediment can be vacuumed out.

Inspection and Maintenance of Area Drains

The area drain shall be inspected quarterly including the end of the foliage and snow removal seasons, and if necessary, any maintenance shall be performed so that it functions as designed. The area drain shall be cleaned bi-annually, or when sediment in the bottom of the sump reaches ½ the depth from the bottom of the invert of the lowest pipe in the basin. Inlet and outlet pipes should be checked for clogging.

Debris and Litter Removal

Trash may collect in the BMP's, potentially causing clogging of the facilities. All debris and litter shall be removed when necessary, and after each storm event. Sediment and debris collected from vacuuming and/or sweeping should be disposed of at a permitted waste disposal facility. Avoid disposing of this material on site, where it could be washed into the proposed subsurface infiltration systems.

Lawn Mowing

All lawn mowing to take place will be done with a mulch mower so grass clippings will not be an issue.

Good Housekeeping Practices (in accordance with Standard 10 of the Stormwater Management Handbook to prevent illicit discharges)

Provisions for storing paints, cleaners, automotive waste and other potentially hazardous household waste products inside or under cover

- All materials on site will be stored inside in a neat, orderly, manner in their appropriate containers with the original manufacturer's label.
- Only store enough material necessary. Whenever possible, all of a product shall be used up before disposing of container.
- Manufacturer, local, and State recommendations for proper use and disposal shall be followed.

Vehicle washing controls

- A commercial car wash shall be used when possible. Car washes treat and/or recycle water.
- Cars shall be washed on gravel, grass, or other permeable surfaces to allow filtration to occur.
- Use biodegradable soaps.

- A water hose with a nozzle that automatically turns off when left unattended.

Requirements for routine inspection and maintenance of stormwater BMPs

- See Inspection and Maintenance Measures after Construction.

Spill prevention and response plans

- Spill Control Practices shall be in conformance with the guidelines set forth in the National Pollutant Discharge Elimination System (NPDES) Stormwater Pollution Prevention Plan (SWPPP)

Provisions for maintenance of lawns, gardens, and other landscaped areas

- Grass shall not be cut shorter than 2 to 3 inches and mulch clipping should be left on lawn as a natural fertilizer.
- Use low volume water approaches such as drip-type or sprinkler systems. Water plants only when needed to enhance root growth and avoid runoff problems.
- The use of mulch shall be utilized where possible. Mulch helps retain water and prevents erosion.

Requirements for storage and use of fertilizers, herbicides and pesticides

- Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.
- Do not fertilize before a rainstorm.
- Consider using organic fertilizers. They release nutrients more slowly.
- Pesticides shall be applied on lawns and gardens only when necessary and applied only in the minimum amounts recommended by the manufacturer.

Pet waste management

- Scoop up and seal pet wastes in a plastic bag. Dispose of properly, in the garbage.

Provisions for solid waste management

- All solid waste shall be disposed of or recycled in accordance with local town regulations.

Snow disposal and plowing plans relative to Resource Area

- Snow shall be plowed and stored on gravel, grass, or other permeable surfaces to allow filtration to occur.
- Once snow melts all sand salt and debris shall be extracted from surface and properly disposed of.
- Snow shall not be disposed of in any resource area or waterbody.
- Avoid disposing snow on top of storm drain catchbasins or stormwater drainage swale.

Winter Road Salt and/or Sand use and storage restrictions

- Sand storage piles should be located outside the 100-year buffer zone and shall be covered at all times. No salt to be stored or used on site.
- Alternative materials, such as sand or gravel, should be used in especially sensitive areas.

Roadway and Parking Lot sweeping schedule

- Pavement sweeping shall be conducted at a frequency of not less than once per year.
- Removal of any accumulated sand, grit, and debris from driveway after the snow melts shall be completed shortly after snow melts for the season.

Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL

Not Applicable

Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan

To be determined by the owner.

List of Emergency contacts for implementing Long-Term Pollution Prevention Plan

To be determined by the owner.

Applicant's Certification

I certify under penalty of law that I have read, understand and agree to abide by the practices outlined in this document.

Signed:_____ Date:_____

The Maggiore Companies

Contractor's Certification

I certify under penalty of law that I have read, understand and agree to abide by the practices outlined in this document.

Signed:_____ Date:_____

Contractor

STORMWATER MANAGEMENT
CONSTRUCTION PHASE

INSPECTION SCHEDULE AND EVALUATION CHECKLIST

PROJECT LOCATION: 1021 & 1025 Massachusetts Ave, Arlington MA

WEATHER: _____

<i>Inspection Date</i>	<i>Inspector</i>	<i>Area Inspected</i>	<i>Required Inspection Frequency if BMP</i>	<i>Comments</i>	<i>Recommendation</i>	<i>Follow-up Inspection Required (yes/no)</i>
		<i>Filtermitt</i>	<i>Weekly and After Major Storm Events</i>			
		<i>Construction Tracking Pad</i>	<i>Weekly and After Major Storm Events</i>			
		<i>Subsurface Infiltration System</i>	<i>Weekly and After Major Storm Events</i>			
		<i>Area Drains</i>	<i>Weekly and After Major Storm Events</i>			

-
- (1) Refer to the Massachusetts Stormwater Handbook, Volume Two: Stormwater Technical Handbook (February 2008) for recommendations regarding frequency for inspection and maintenance of specific BMP's.
 - (2) Inspections to be conducted by a qualified professional such as an environmental scientist or civil engineer.

Limited or no use of sodium chloride salts, fertilizers or pesticides recommended.

Other notes: (Include deviations from: Con. Comm. Order of Conditions, PB Approval, Construction Sequence and Approved Plan)

Stormwater Control Manager: _____

STORMWATER MANAGEMENT
AFTER CONSTRUCTION

INSPECTION SCHEDULE AND EVALUATION CHECKLIST

PROJECT LOCATION: 1021 & 1025 Massachusetts Ave, Arlington MA

WEATHER: _____

<i>Inspection Date</i>	<i>Inspector</i>	<i>Area Inspected</i>	<i>Required Inspection Frequency if BMP</i>	<i>Comments</i>	<i>Recommendation</i>	<i>Follow-up Inspection Required (yes/no)</i>
		<i>Subsurface Infiltration System</i>	<i>Bi-annually and After Major Storm Events</i>			
		<i>Area Drains</i>	<i>Quarterly and After Major Storm Events</i>			

(3) Refer to the Massachusetts Stormwater Handbook, Volume Two: Stormwater Technical Handbook (February 2008) for recommendations regarding frequency for inspection and maintenance of specific BMP's.

(4) Inspections to be conducted by a qualified professional such as an environmental scientist or civil engineer.

Limited or no use of sodium chloride salts, fertilizers or pesticides recommended.

Other notes: (Include deviations from: Con. Comm. Order of Conditions, PB Approval, Construction Sequence and Approved Plan)

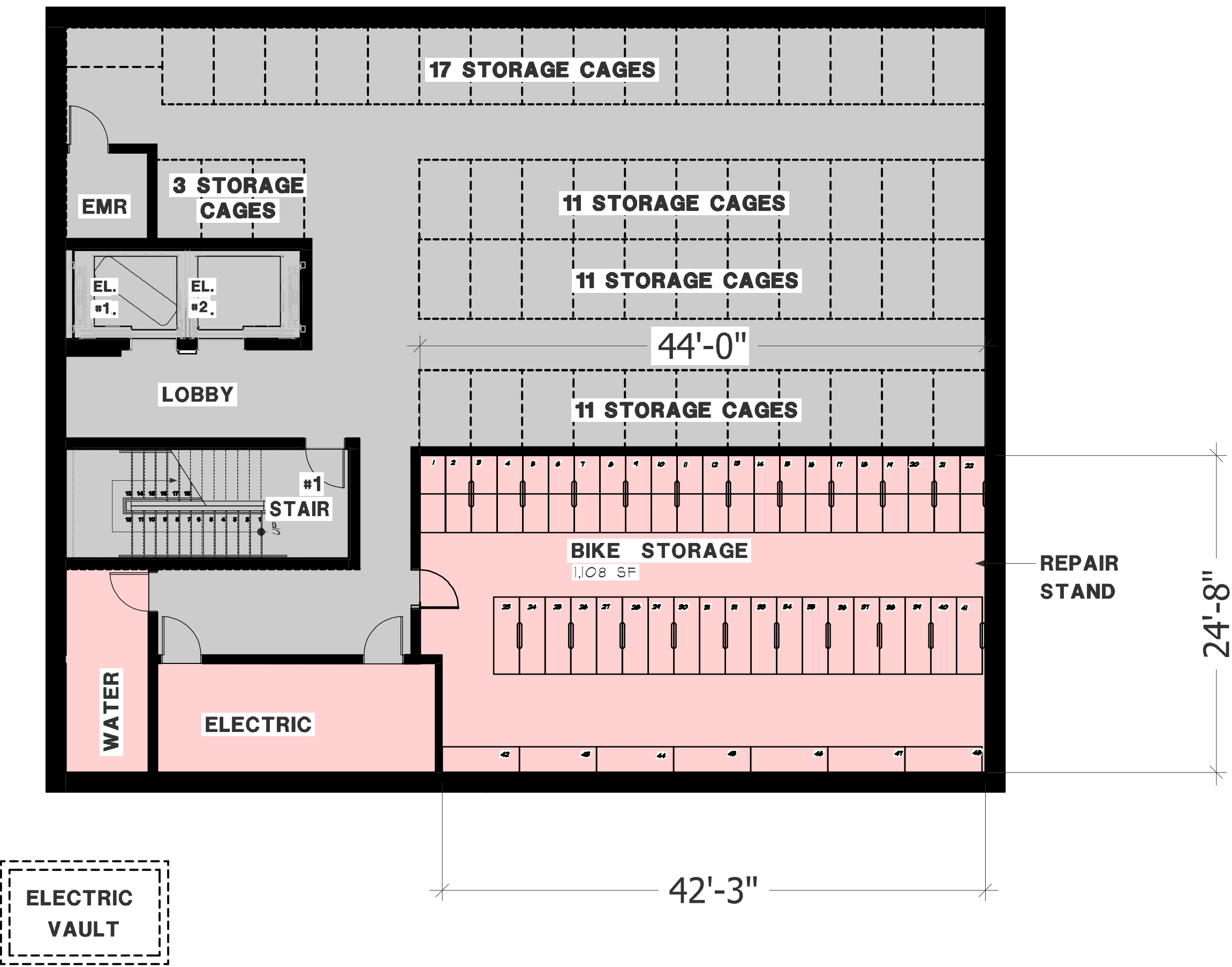
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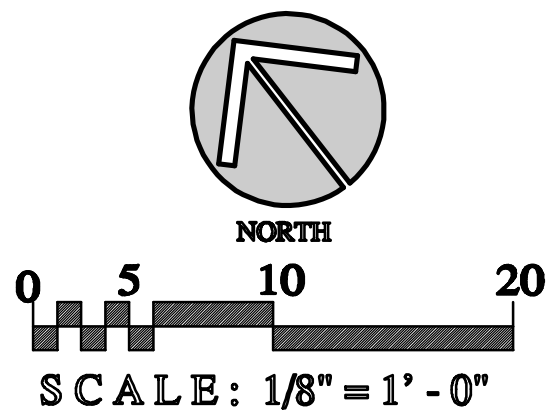
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- CIRCULATION
- GARAGE
- COMMON SPACE

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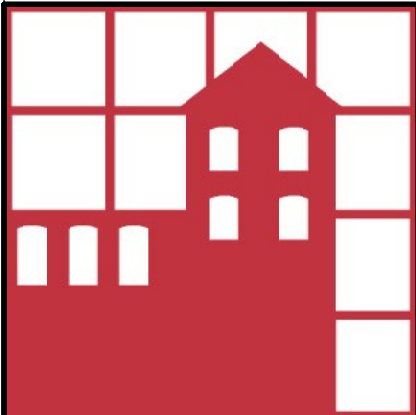
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- UNIT OUTSIDE SPACE
- 1 BEDROOM UNIT
- 2 BEDROOM UNIT
- 3 BEDROOM UNIT
- 3 BEDROOM UNIT
- COMMON OUTSIDE SPACE



BASEMENT FLOOR PLAN



1021-1025 MASSACHUSETTS AVENUE, ARLINGTON MA
APRIL 14, 2023



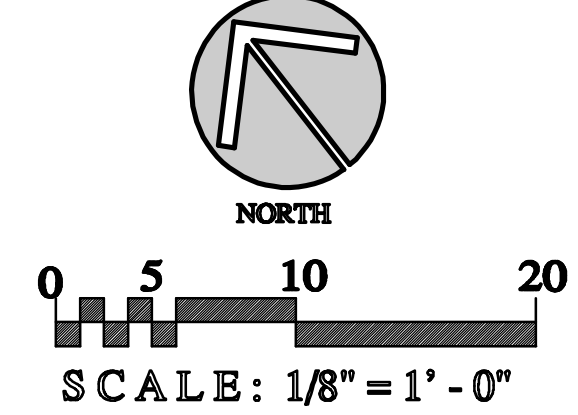
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A1.0



GROUND FLOOR PLAN



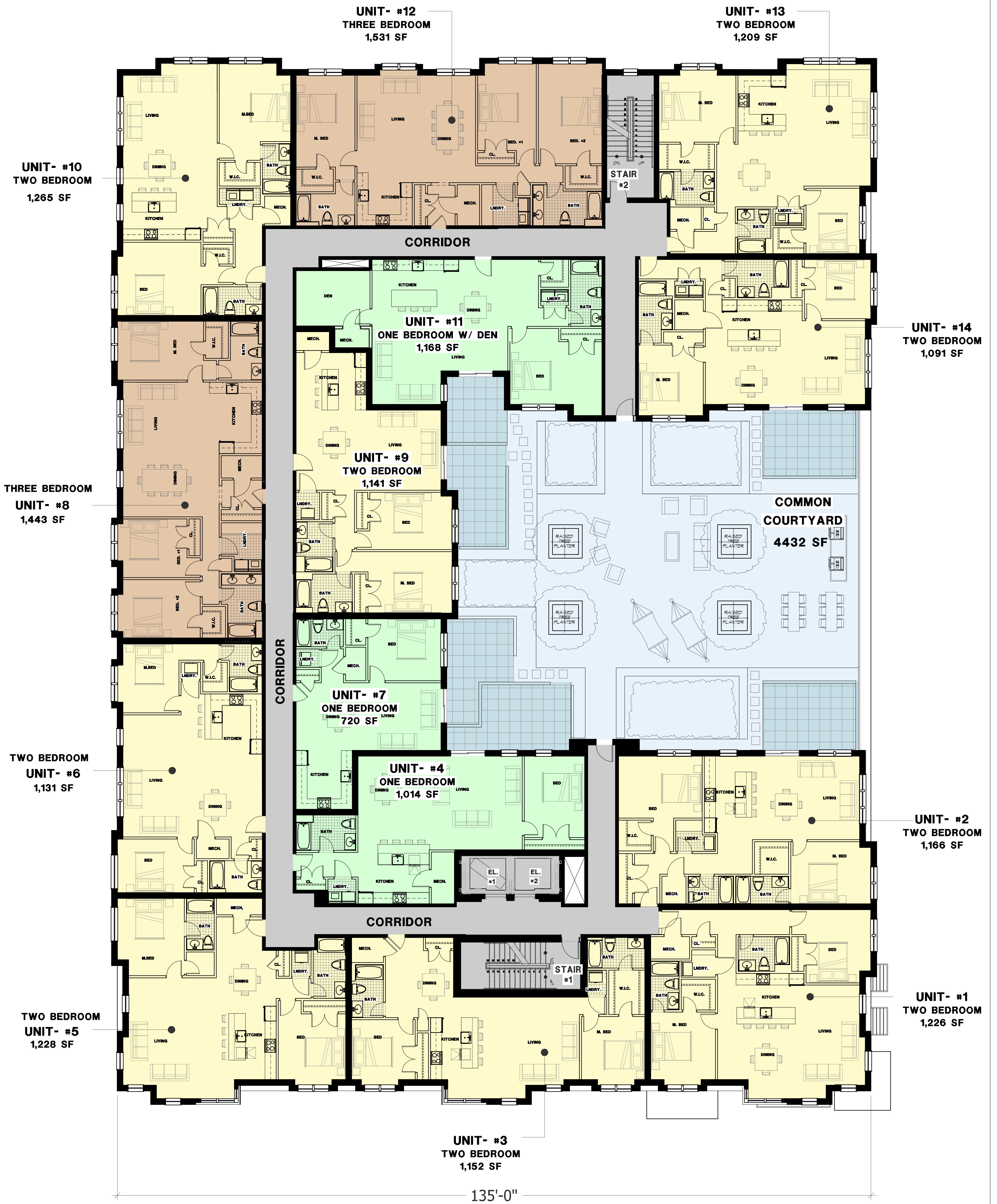
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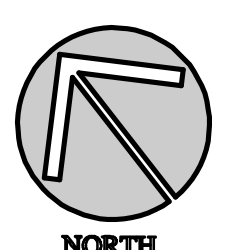
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GROSS AREA - 20,432 S.F.

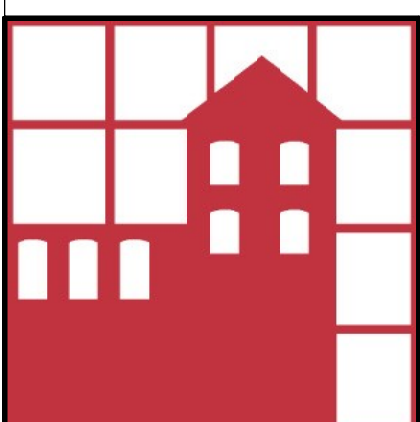
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2nd FLOOR PLAN



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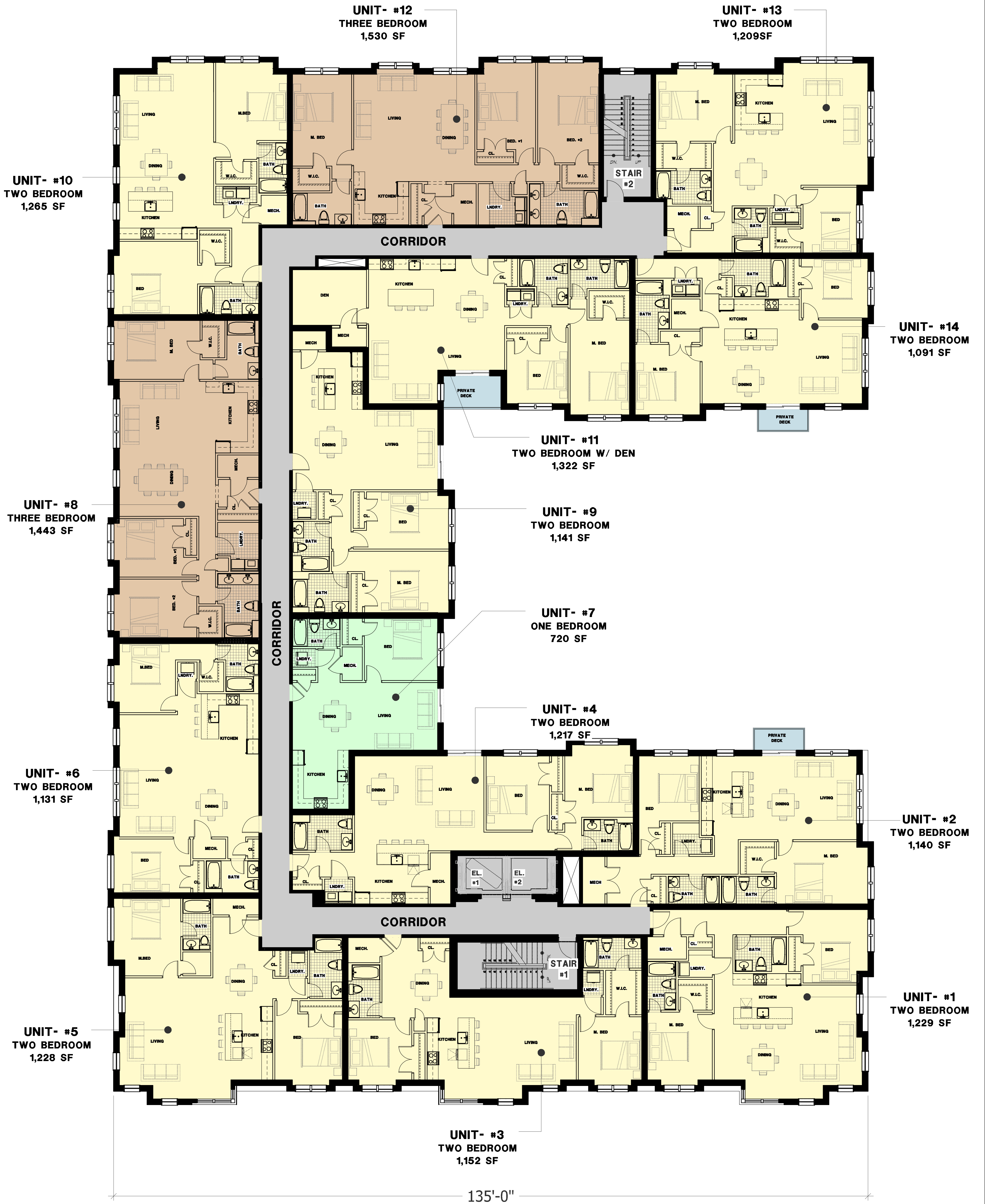
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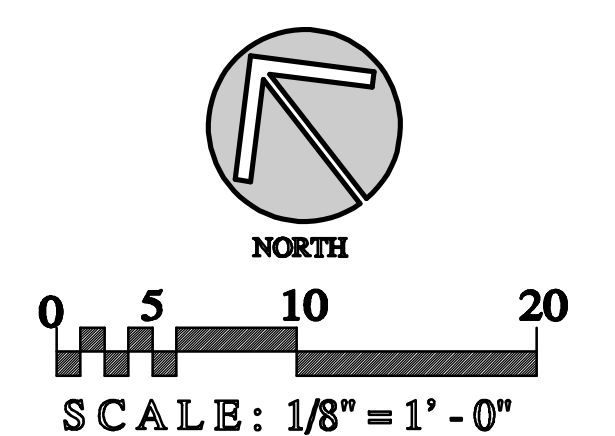
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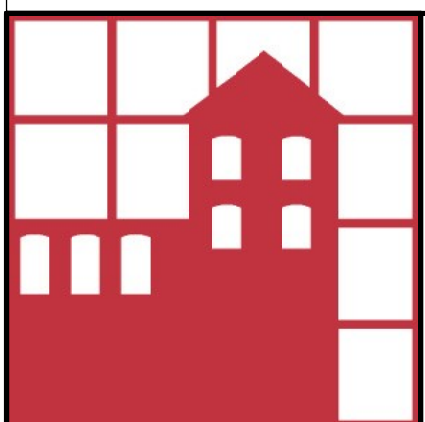
GROSS AREA - 20,432 S.F.

14 UNITS

3rd FLOOR PLAN



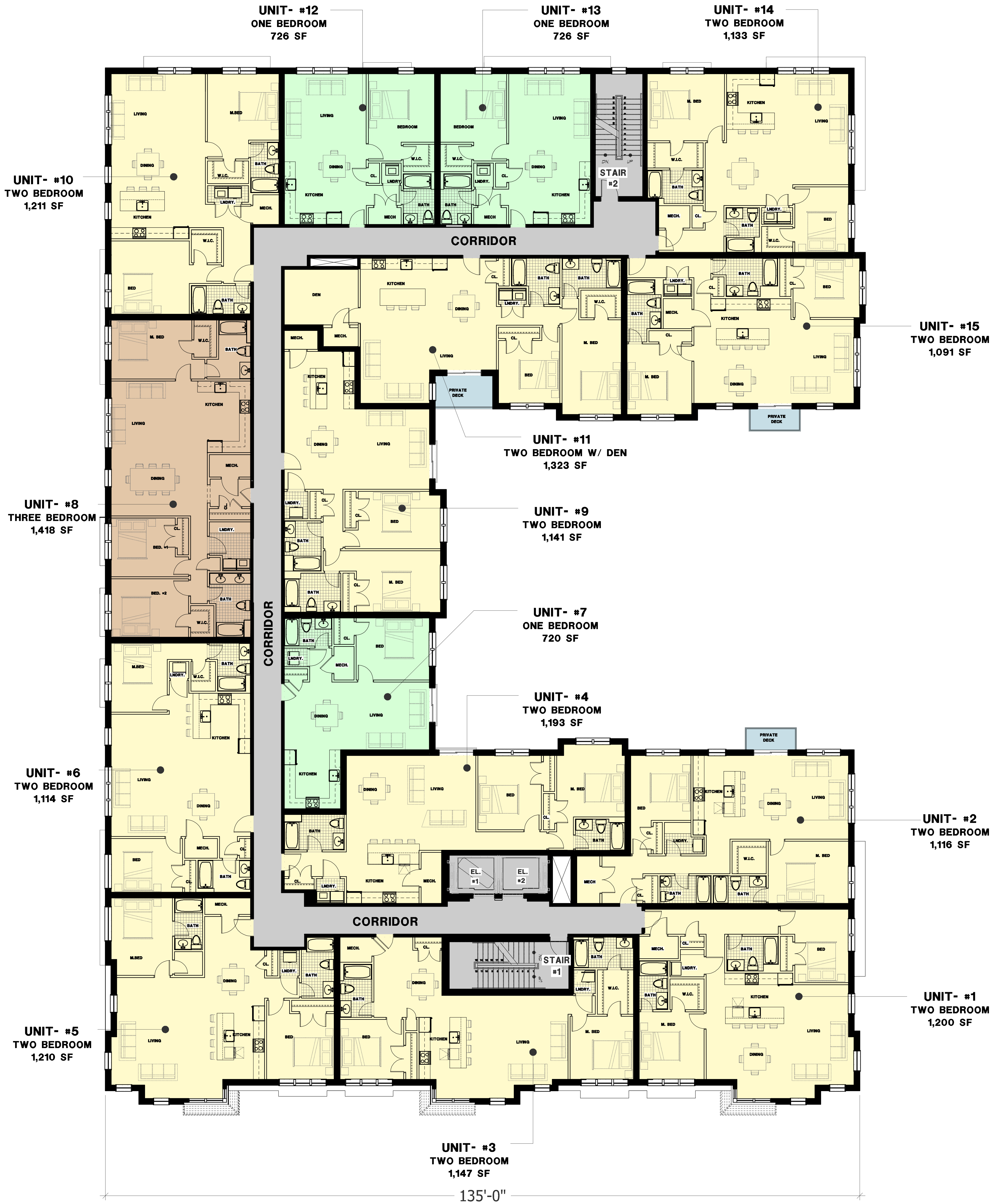
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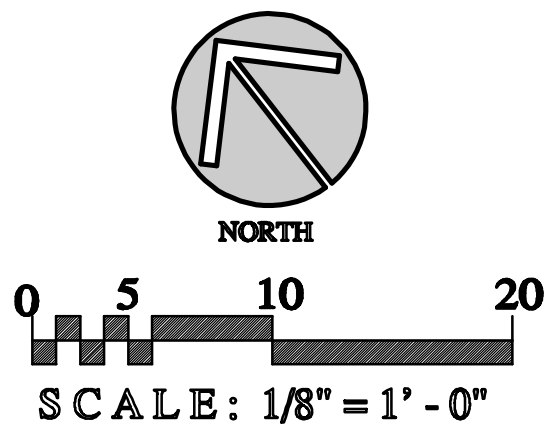
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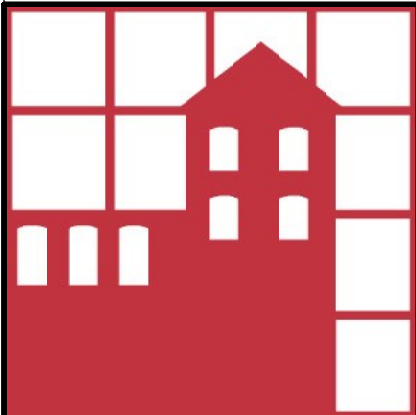
GROSS AREA - 20,095 S.F.

15 UNITS

4th FLOOR PLAN



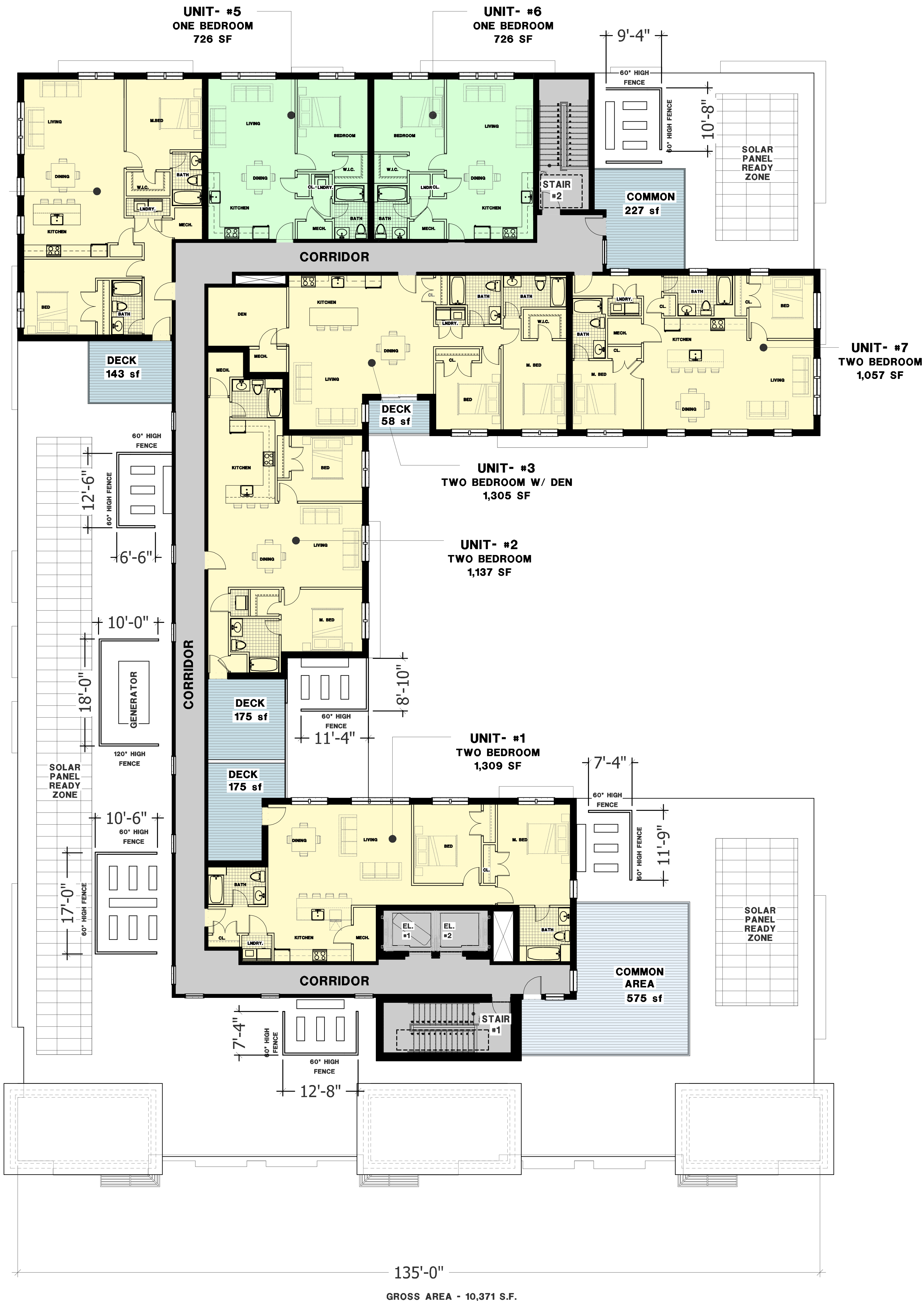
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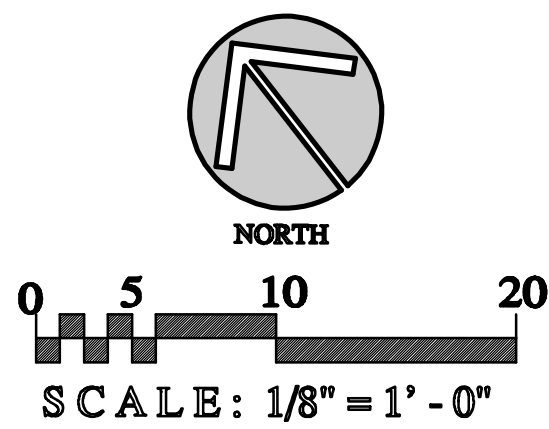
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GROSS AREA - 10,371 S.F.

7 PENTHOUSE UNITS

5th FLOOR PLAN



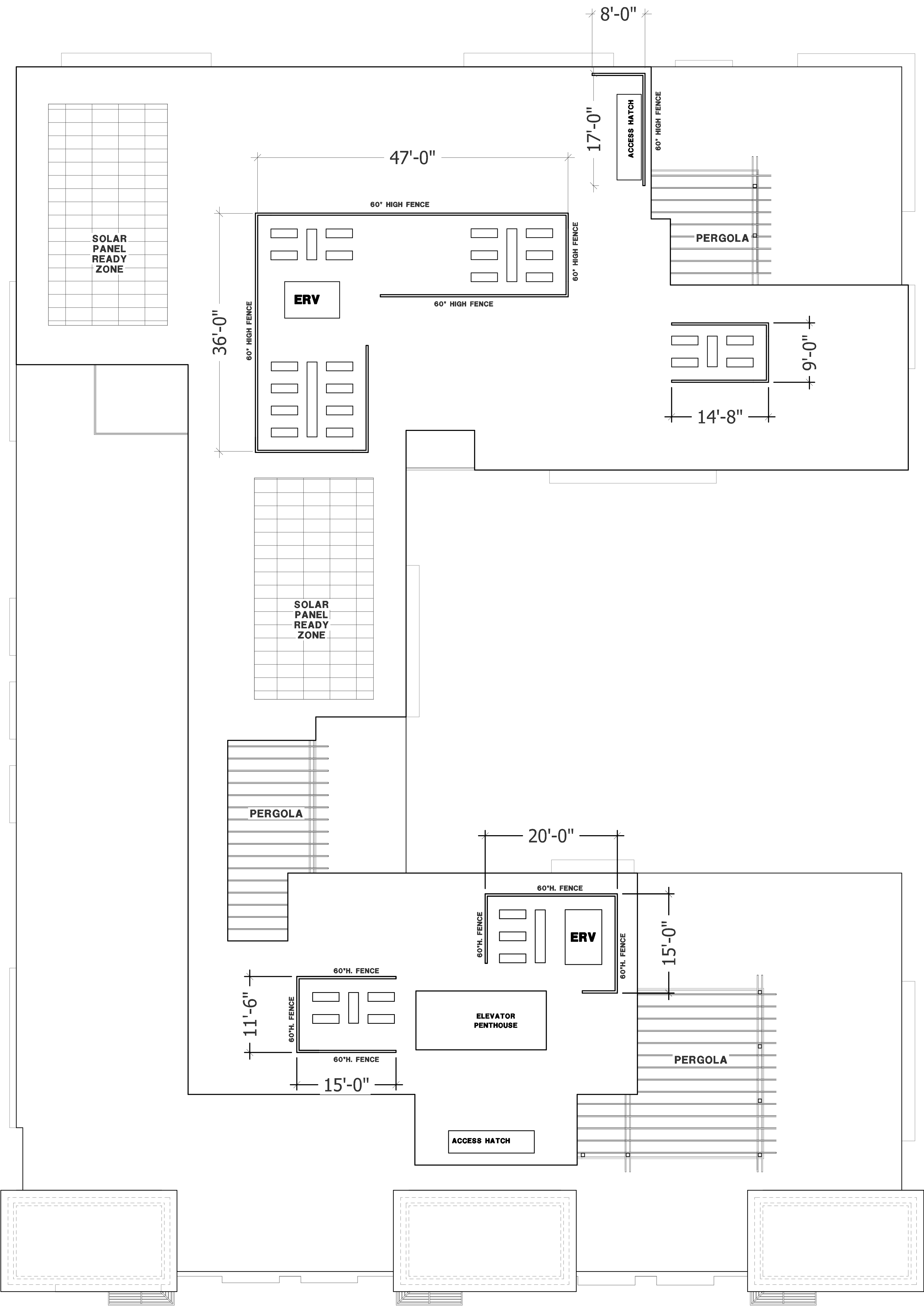
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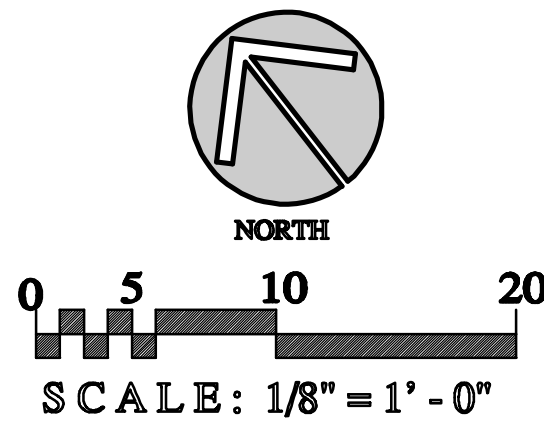
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A1.5



ROOF PLAN



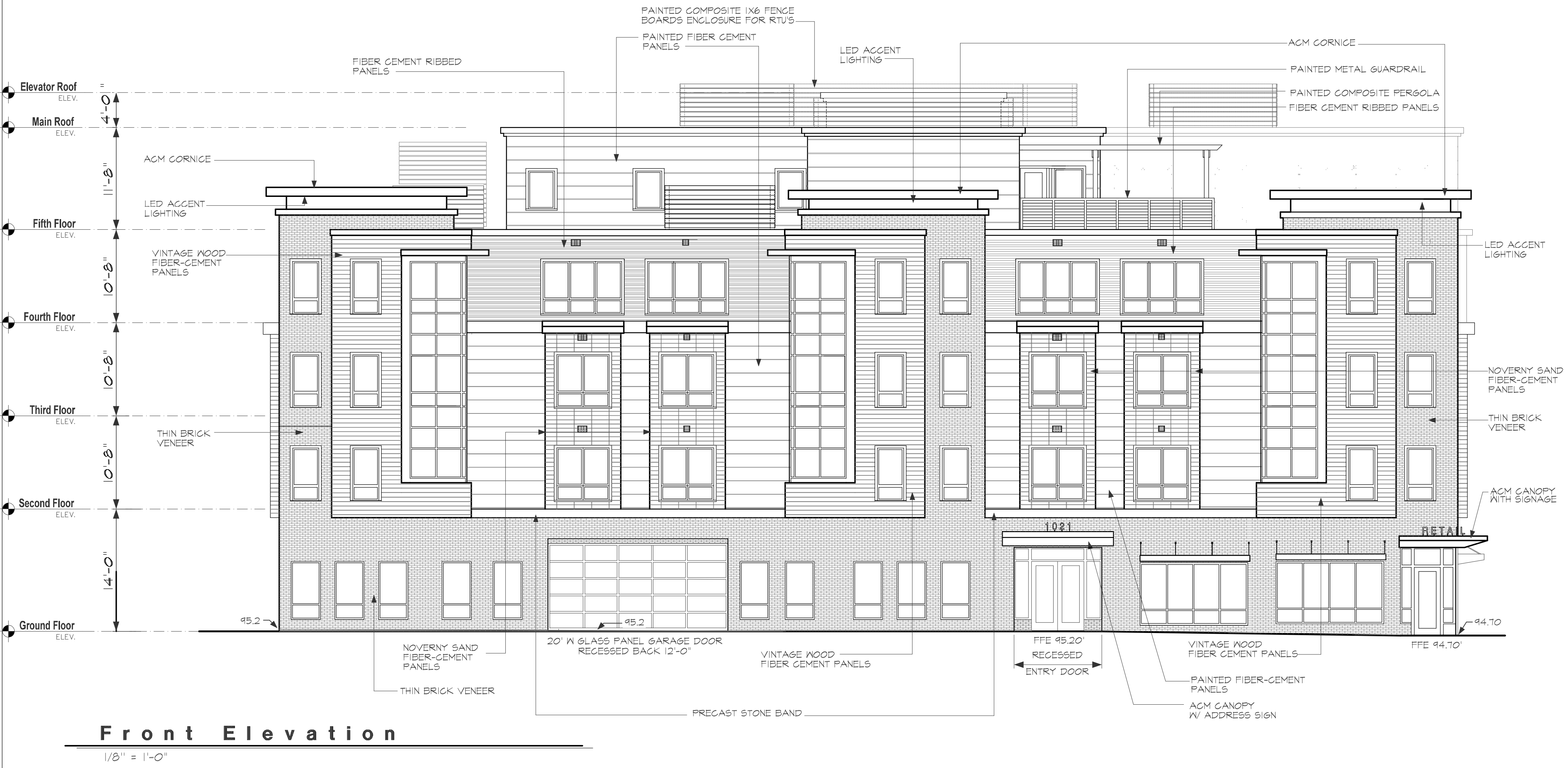
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A1.6



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A2.1



Section / Elevation

1/8" = 1'-0"



Section / Elevation

1/8" = 1'-0"

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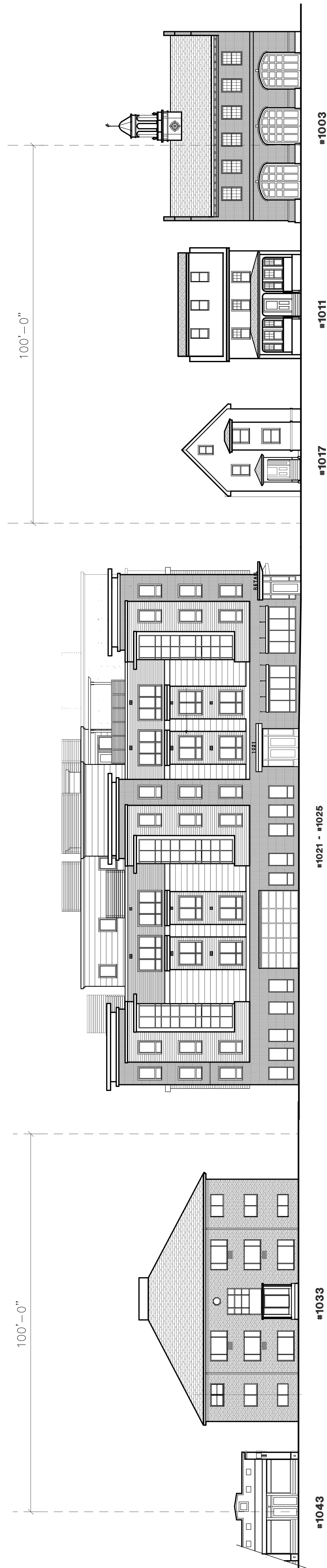
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1/8" = 1'-0"

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STREET ELEVATION

0 8 16 32
SCALE: 1/16" = 1' - 0"

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A3.1



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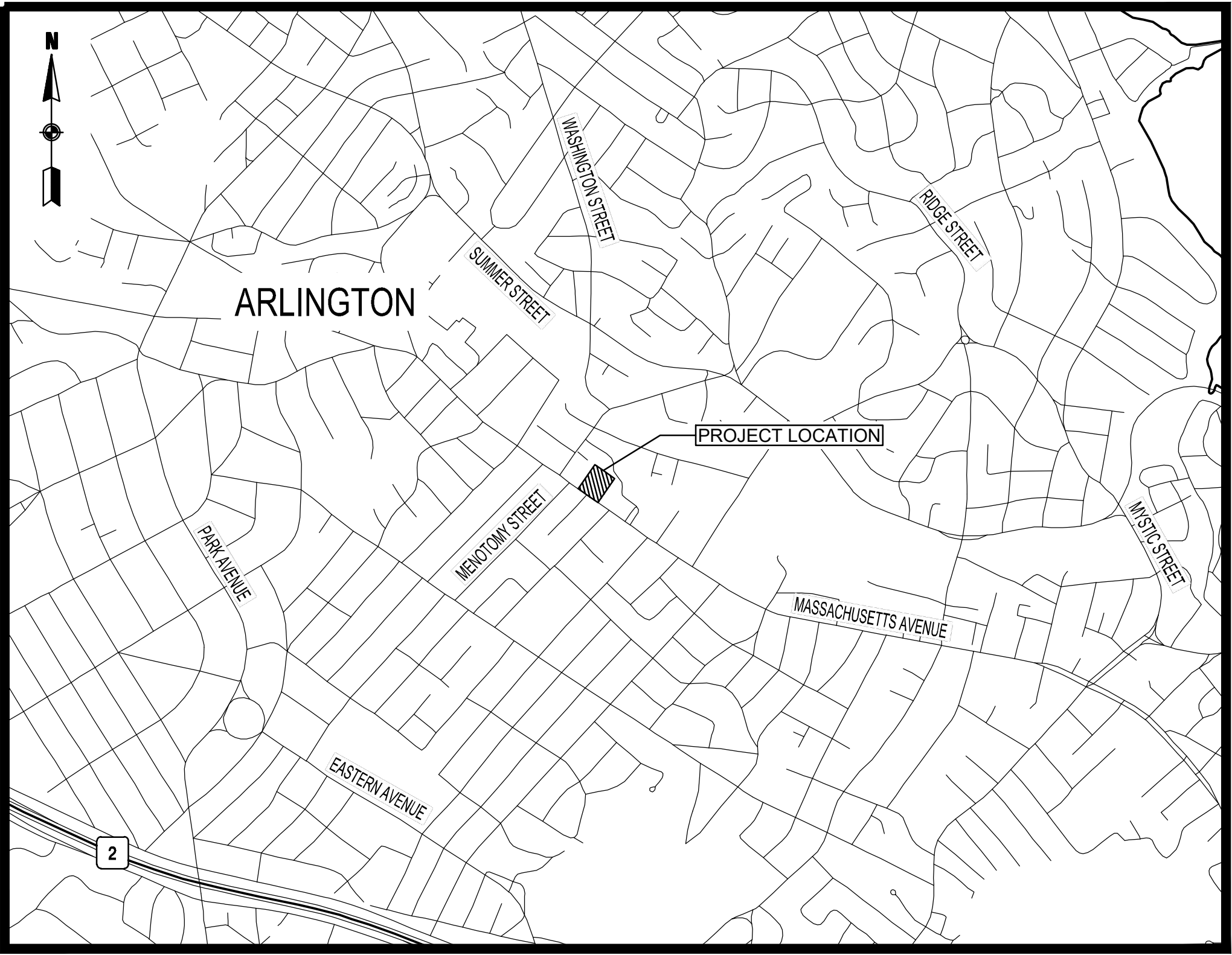
A3.2

CONSTRUCTION MANAGEMENT PLAN

PLAN OF
1021 & 1025 MASSACHUSETTS AVENUE

IN THE TOWN OF
ARLINGTON
MIDDLESEX COUNTY

THE COMMONWEALTH OF MASSACHUSETTS



0 1000 2000 3000 4000
SCALE: 1" = 1000'

MARCH 2023

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	GENERAL NOTES, LEGEND & SCHEDULE
3	CONSTRUCTION DETAILS & SIGN SUMMARY
4	PHASE 1
5	PHASE 2
6	PHASE 3A
7	PHASE 3B
8	PHASE 4A
9	PHASE 4B
10	TRUCK ROUTING PLANS

PROJECT TITLE

1021 & 1025
Massachusetts Ave
Construction
Management Plan

Arlington,
Massachusetts

PREPARED FOR

1025 Mass Ave, LLC

Woburn,
Massachusetts

VA Vanasse &
Associates inc
Transportation Engineers & Planners

35 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1071
TEL: (978) 474-8800
www.rdva.com

DESIGNED BY	MPP
DRAWN BY	MPP
CHECKED BY	SMB/DAD
DATE	MARCH 2023
SCALE	AS NOTED
STAMP	

REVISIONS		
NO.	DESCRIPTION	DATE

DRAWING TITLE

Title Sheet & Index

SHEET 1 OF 10	DRAWING NUMBER
JOB NO. 9658	1
CAD 9658DS	

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GENERAL NOTES

1.

THESE PLANS ARE NOT INTENDED TO LIMIT THE CONTRACTORS RIGHT TO SCHEDULE THE WORK BUT TO OUTLINE ONE WAY OF PROGRESSING. THE CONTRACTOR IS EXPECTED TO USE KNOWLEDGE AND EXPERIENCE TO PERFORM THE WORK IN THE MOST SAFE AND EFFICIENT MANNER IN COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS AND MEETING THE REQUIREMENTS OF THE TOWN OF ARLINGTON.
2.

CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE TOWN, CONSTRUCTION MANAGEMENT PLANS FOR ANY WORK OUTSIDE OF THE WORK ZONES INDICATED IN THESE DRAWINGS.
3.

ALTERNATIVE PHASING OR MODIFICATIONS TO ANY ASPECT OF THE CONSTRUCTION MANAGEMENT PLANS AND THE CONSTRUCTION STAGING PLANS WILL BE SUBJECT TO REVIEW FOR ACCEPTANCE BY THE TOWN PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH THE SUBMISSION AND REVIEW OF ALTERNATIVE CONSTRUCTION MANAGEMENT PLANS AND CONSTRUCTION STAGING PLANS, INCLUDING PRESENTATION TO THE TOWN AND THE NEIGHBORHOOD IF NEEDED, VEHICULAR AND PEDESTRIAN TRAFFIC MODELING, LEVEL OF SERVICE (LOS) ANALYSES, AND OTHER ASSOCIATED EFFORTS. ALTERNATIVE CONSTRUCTION MANAGEMENT AND CONSTRUCTION STAGING PLANS SHALL NOT CAUSE AN INTERFERENCE WITH ADJACENT CONTRACTS OR DELAY THE SCHEDULE OR INCREASE THE COST OF THIS OR ANY ADJACENT CONTRACTS. LEVEL OF SERVICE ANALYSIS SHALL BE DEFINED BY THE "HIGHWAY CAPACITY MANUAL."
4.

THE CONSTRUCTION MANAGEMENT PLANS REQUIRE THAT SPECIFIC SIDEWALK WIDTHS BE MAINTAINED DURING THE VARIOUS STAGES OF CONSTRUCTION TO FACILITATE ACCEPTABLE PEDESTRIAN LEVEL OF SERVICE (LOS) MOVEMENTS ALONG TRAVEL WAYS TO AND FROM ABUTTING BUILDING AND BUSINESSES WITHIN THE PROJECT LIMITS. THE MINIMUM SIDEWALK WIDTHS SHOWN ON THE TRAFFIC MANAGEMENT PLANS ARE BASED ON ENGINEERING ANALYSIS AND ARE LOCATED ON THE PLANS (AS REQUIRED) AROUND TEMPORARY FIXED BARRICADED WORK ZONES AT SITE SPECIFIC POINTS OF CONSTRUCTION. THE SIDEWALK WIDTHS SHOWN ON THE CONSTRUCTION MANAGEMENT PLANS SHALL NOT BE DEVIATED FROM WITHOUT THE PERMISSION OF THE TOWN. WHEN SPECIFIC DIMENSIONS ARE NOT SHOWN, THE CONTRACTOR SHALL MAINTAIN A MINIMUM 4-FOOT PASSAGE.

4.A.

CONTRACTOR SHALL PROVIDE AND MAINTAIN A TEMPORARY PEDESTRIAN ROUTE ACCESSIBLE TO DISABLED PERSONS AROUND BLOCKAGES TO AN EXISTING PEDESTRIAN ROUTE (E.G., SIDEWALKS, CROSSWALKS, PEDESTRIAN CURB RAMPS, ETC.). BLOCKAGES INCLUDE, BUT ARE NOT LIMITED TO, CONSTRUCTION WORK, EXCAVATIONS, EQUIPMENT AND VEHICLES, TEMPORARY WATER AND UTILITY LINES.

4.B.

SIDEWALK AREAS SHALL REMAIN OPEN AND FREE FROM SAFETY CONTROL DEVICES AND CONSTRUCTION DEBRIS THROUGHOUT THE DURATION OF THE CONSTRUCTION. PEDESTRIAN DETOURING SHALL NOT OCCUR UNLESS APPROVED BY THE TOWN.
5.

CONTRACTOR SHALL SECURE WORK AREAS TO ENSURE PUBLIC SAFETY AND CONVENIENCE. THIS SHALL INCLUDE ENSURING THAT ALL EXCAVATIONS ARE PROTECTED AT ALL TIMES.
6.

ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES AND OTHER DEVICES SHALL CONFORM WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS AMENDED.
7.

CHANNELIZATION OF VEHICULAR TRAFFIC WILL BE ACCOMPLISHED THROUGH THE USE OF 36" REFLECTORIZED CONES AND/OR REFLECTORIZED PLASTIC DRUMS OR APPROVED EQUAL IN ACCORDANCE WITH THE MUTCD.
8.

CONTRACTOR SHALL COORDINATE WITH THE TOWN TO ACCOMMODATE ACCESS NEEDS OF ABUTTING PROPERTIES NOT SPECIFIED IN THE PLANS.

CONSTRUCTION AND TRAFFIC MANAGEMENT LOGISTICS

1.

SIDEWALKS ALONG BUILDING FRONTAGE TO BE CLOSED UNTIL VERTICAL CONSTRUCTION IS SUBSTANTIALLY COMPLETED.
2.

PEDESTRIAN TRAFFIC WILL BE DIVERTED TO THE SOUTH SIDE OF MASSACHUSETTS AVENUE
3.

SIDEWALKS WILL BE REMOVED AND DISPOSED OF ALONG BUILDING FRONTAGE AND WILL BE REPLACED WITH NEW CONCRETE SIDEWALKS AT COMPLETION OF CONSTRUCTION.
4.

FURNISH AND INSTALL (2) TEMPORARY CROSSWALKS WITH ADA COMPLIANT TIP DOWNS, DETECTIBLE WALKING SURFACES, SIGNAGE AND VISUAL SIGNALING AS RECOMMENDED BY THE TOWN ENGINEERS OFFICE.
5.

FURNISH AND INSTALL ROADWAY MARKINGS DEPICTING THE LIMITS OF THE SIDEWALKS ACROSS MASSACHUSETTS AVENUE.
6.

FURNISH AND INSTALL FENCING AS DEPICTED IN THESE CONSTRUCTION MANAGEMENT PLANS, WITH GATES TO THE EAST AND WEST OF THE NEW CURB CUT, TO CAPTURE SIDEWALK AREA TO ENABLE THE CONSTRUCTION OF THE BASEMENT AREA, WHILE MAINTAINING LEGAL TRENCH SLOPES OF 1:1 PER OSHA REGULATIONS. TO PROVIDE FURTHER CLARIFICATION, THE EXCAVATION OF THE BASEMENT WILL BE APPROXIMATELY 12 FEET IN DEPTH AND WE WILL REQUIRE A MINIMUM OF 4 FEET OF WORKING SPACE IN THE FOUNDATION HOLE TO CONSTRUCT THE FOOTINGS AND WALLS AND ONLY 13 FEET TO THE PROPERTY LINE. IN ADDITION TO MAINTAINING OSHA COMPLIANCE, PEDESTRIANS WILL BE DETOURED TO THE SOUTH SIDE OF MASSACHUSETTS AVENUE TO AVOID CONFLICTS WITH HEAVY EQUIPMENT ENTERING AND EXITING THE PROPERTY.
7.

THE BALANCE OF THE SITE PERIMETER WILL BE SECURED USING DRIVEN POSTS AND REMOVABLE FENCE PANELS.
8.

ALL FENCING WILL BE COVERED WITH BLACK SCRIM FOR AESTHETICS.
9.

THESE CONSTRUCTION MANAGEMENT PLANS INCLUDE THE EXCLUSIVE USE OF THE PARKING SPACES ON MASSACHUSETTS AVENUE ALONG THE PROPERTY FRONTAGE, IN ORDER TO FACILITATE MATERIAL DELIVERIES, TRENCH AND INSTALL UTILITIES FROM MASS AVE, AND LIMITED DAY PARKING FOR CONSTRUCTION VEHICLES.

ADDITIONAL CONSTRUCTION NOTES

TRASH REMOVAL

THE 30 YARD DUMPSTER THAT IS REQUIRED FOR GENERAL CONSTRUCTION WASTE IS APPROXIMATELY 22' X 8', WHICH WILL BE LOCATED ALONG THE BUILDING FRONTAGE AS DEPICTED IN THE DRAWINGS. IT WILL BE WITHIN THE SITE AND SCREENED BY SIX FOOT TALL TEMPORARY FENCING AND SCRIM.

9.

CONTRACTOR SHALL MAINTAIN EMERGENCY PASSAGE AT ALL TIMES TO BUILDINGS WITHIN THE PROJECT LIMITS. CONTRACTOR SHALL MAINTAIN 24-HOUR EMERGENCY VEHICLE ACCESS TO AND THROUGH CONSTRUCTION AREAS.
10.

SAFETY SIGNS PROPOSED FOR LOCATIONS OTHER THAN ERECTED ON TEMPORARY BARRICADES MAY BE ERECTED ON EXISTING LIGHTPOLES, SIGNPOSTS, AND OTHER EXISTING FEATURES AS APPROVED BY THE TOWN.
11.

LOCATIONS OF SIGNS SHOWN ARE APPROXIMATE. EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR SHALL ENSURE THAT SIGNS ARE PLACED SO MAXIMUM VISIBILITY IS OBTAINED.
12.

EXISTING SIGNAGE WHICH CONFLICTS WITH PROPOSED SIGNING SHALL BE REMOVED AND STACKED OR COVERED AS DETERMINED BY THE TOWN. IF NECESSARY, AT THE END OF CONSTRUCTION THE CONTRACTOR SHALL RESTORE THE SIGNAGE TO ITS ORIGINAL CONDITION.
13.

THE ARLINGTON POLICE, FIRE, AND TRANSPORTATION DEPARTMENTS SHALL BE ADVISED OF THE SCHEDULE OF CONSTRUCTION AS WELL AS OF ANY DETOURS OR ALTERNATE ROUTES.
14.

WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE TOWN FOR RESOLUTION OF THE CONFLICT.
15.

THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES AT NO ADDITIONAL COST TO THE TOWN. IF THE CONTRACTOR ADJUSTS UTILITY COVERS IT SHALL BE DEEMED PART OF THE WORK AND THERE WILL BE NO ADDITIONAL COMPENSATION.
16.

ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE NOTIFIED, INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN, (SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS) PRIOR TO EXCAVATING, BLASTING, INSTALLING, BACKFILLING GRADING, PAVEMENT RESTORATION, OR REPAVING.
17.

THE ACCURACY AND COMPLETENESS OF UNDERGROUND UTILITIES ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION, SIZE, TYPE, ETC. OF ALL UNDERGROUND UTILITIES THAT MAY BE AFFECTED BY THE WORK. AT LEAST 72 HOURS BEFORE DIGGING BEGINS, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT (888)344-7233. ALL TOWN OWNED UTILITY STRUCTURES WITHIN AREAS AFFECTED BY THE WORK SHALL BE ADJUSTED TO NEW LINE AND GRADE AS DIRECTED BY THE ENGINEER. ANY UTILITY POLES AND/OR GUY POLES WITHIN AREAS AFFECTED BY THE WORK SHALL BE REMOVED AND RESET BY THE RESPECTIVE UTILITY COMPANY. ALTERATIONS TO UTILITIES NOT OWNED BY THE TOWN SHALL BE MADE BY THE RESPECTIVE UTILITY OWNERS.
18.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR CONSTRUCTION MANAGEMENT EFFORTS OUTSIDE OF THE SITE PLANS AND TO COMPLY WITH CONDITIONS OUTLINED WITHIN THE PLANS AND SPECIFICATIONS USING APPROVED METHODS.
19.

AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS, INCLUDING STAGING AREAS, SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
20.

THE CONTRACTOR IS HEREBY NOTIFIED THAT ADDITIONAL WORK WITHIN THE PROJECT LIMITS MAY BE PERFORMED BY OTHERS.

TEMPORARY RESTROOM FACILITIES

TEMPORARY RESTROOM FACILITIES WILL BE LOCATED BEHIND THE DUMPSTER AREA WITHIN THE CONSTRUCTION ZONE SO THAT THEY WILL BE SCREENED FROM MASS AVE. THERE WILL BE A TOTAL OF THREE TO FOUR RESTROOM COMPARTMENTS REQUIRED FOR THE PROJECT DURATION.

LOADING AND UNLOADING

LOADING AND UNLOADING OF LARGER CONSTRUCTION MATERIAL DELIVERIES WILL OCCUR IN THE CONTRACTOR PARKING AREA UNDER THE SUPERVISION OF A POLICE DETAIL AS REQUIRED TO MAINTAIN THE SAFETY OF THE PUBLIC. SMALLER DELIVERIES WILL BE FACILITATED IN THE DRIVEWAY TO THE BUILDING OR THE FIRST FLOOR PARKING LEVEL.

SNOW MANAGEMENT

DURING CONSTRUCTION SNOW WILL BE REMOVED IN ITS ENTIRETY ON THE CONSTRUCTION SIDE OF THE TEMPORARY FENCING AND IMMEDIATELY IN FRONT OF THE FENCING ON THE STREET SIDE. SHORT TERM RELOCATION OF THE TEMPORARY FENCING LOCATED WITHIN THE ROADWAY MAY BE REQUIRED. THE CONTRACTOR SHALL COORDINATE WITH THE ARLINGTON DPW PRIOR TO ANY SNOW EVENTS.

MBTA BUS STOP ACCESS

THE PROPOSED TRAFFIC AND CONSTRUCTION MANAGEMENT PLAN WILL MAINTAIN THE ACCESS TO THE BUS STOP (WEST OF THE SUBJECT PROPERTY) FOR MBTA BUSES AND PEDESTRIANS. SEE PLANS FOR TEMPORARY RELOCATION OF 1 MBTA SIGN.

ADA COMPLIANCE

THE PROPOSED TRAFFIC AND CONSTRUCTION MANAGEMENT PLAN WILL PROVIDE LEGAL ADA ACCESS AT THE TEMPORARY CROSSWALKS. THEY WILL BE CREATED BY REMOVING SECTIONS OF THE EXISTING CONCRETE SIDEWALK AND FORMING THEM SO THAT THEY RAMP DOWN TO THE ROADWAY ELEVATION IN A COMPLIANT MANNER. AT THE COMPLETION OF THE PROJECT THE TEMPORARY CROSSWALKS WILL BE REMOVED AND THE CONCRETE SIDEWALKS WILL BE REPLACED IN THEIR ENTIRETY AND RETURNED TO THEIR ORIGINAL CONFIGURATION.

TRUCK ROUTING

THE PRIMARY TRUCK ROUTE FROM I-95 TO THE SITE IS AS FOLLOWS:

I-95 TO ROUTE 3A (CAMBRIDGE STREET) TO LEXINGTON STREET TO RIDGE STREET TO FOREST STREET TO MASSACHUSETTS AVE. **NO PARKING PERMITTED ON ORCHARD PLACE, WHICH IS A PRIVATE STREET**

DUST CONTROL

WETTING AGENTS WILL BE USED REGULARLY TO CONTROL AND SUPPRESS DUST THAT MAY COME FROM CONSTRUCTION ACTIVITIES.

21.

THE CONTRACTOR SHALL FIELD VERIFY CONDITIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.
22.

THE CONTRACTOR SHALL VERIFY PROPERTY LIMITS PRIOR TO CONSTRUCTION AND PLACE ANY TEMPORARY OR NEW EQUIPMENT WITHIN THE PROJECT LIMITS OR THE TOWN OF ARLINGTON'S RIGHT OF WAY.
23.

PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT FOR REVIEW A DETAILED SCHEDULE OF OPERATIONS IN ADDITION TO OTHER CONTRACT REQUIREMENTS TO THE TOWN OF ARLINGTON AND PUBLIC WORKS DEPARTMENT.
24.

ANY WORK ASSOCIATED WITH THIS CONSTRUCTION MANAGEMENT PLAN SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN STANDARD SPECIFICATIONS AND DRAWINGS.
25.

NO EXISTING PUBLIC UTILITY STRUCTURES SHALL BE ABANDONED AND/OR DISMANTLED WITHOUT AUTHORIZATION FROM THE TOWN.
26.

THE CONTRACTOR SHALL DISPOSE OF ALL WASTE MATERIAL IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS AT HIS OWN EXPENSE.
27.

THE CONTRACTOR SHALL TAKE CARE TO NOT DAMAGE EXISTING UTILITY POLE MOUNTED STREET LIGHTING AND SHALL COORDINATE WITH THE NECESSARY PARTIES TO REPAIR ANY DAMAGE THAT IS CAUSED.
28.

ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC, OR APPROVED EQUAL, AND MEET STD SPECIFICATION, IF NECESSARY, AT THE END OF CONSTRUCTION THE CONTRACTOR SHALL RESTORE THE PAVEMENT MARKINGS TO ITS ORIGINAL CONDITION.
29.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY TRAFFIC SIGNAL EQUIPMENT, LOOP DETECTORS, PAVEMENT MARKINGS, AND SIGNAGE DAMAGED OR TEMPORARILY REMOVED DURING CONSTRUCTION.
30.

THE CONTRACTOR SHALL ERADICATE EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH PROPOSED PAVEMENT MARKINGS.
31.

CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING ANY WEIGHT RESTRICTIONS ON AREA BRIDGES AND TO INSURE THAT TRAFFIC DOES NOT EXCEED WEIGHT RESTRICTIONS IF BRIDGES ARE USED.
32.

AT CROSSWALK LOCATIONS AND OTHER LOCATIONS WHERE PEDESTRIAN AND/OR VEHICLE SIGHT LINES MAY BE IMPACTED BY CONSTRUCTION FENCING, THE CONTRACTOR SHALL NOT INSTALL ANY SCREEN THAT MAY DIMINISH SIGHT LINES.
33.

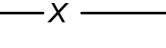




CONSTRUCTION WORKERS SHALL NOT PARK ON RESIDENTIAL STREETS IN THE TOWN AND ARE NOT ELIGIBLE FOR TEMPORARY PARKING PERMITS. PARKING IS NOT PERMITTED ON PRIVATE ROADS. ALL WORKERS SHALL PARK ON-SITE OR AT LEGAL PARKING SPACES/GARAGES.
34.

ANY TOWN SIGNS, POLES, STREET LIGHTS, TRAFFIC SIGNALS, ETC. ARE TO BE STACKED FOR HIGHWAY DIVISION STAFF REVIEW FOR SALVAGE. THE CONTRACTOR SHALL DISPOSE OF REMAINING MATERIAL.

STREET FURNITURE LEGEND

PROPOSED	EXISTING	DESCRIPTION
		SIGN POST
		STREET LIGHT
		HYDRANT
		MAILBOX
		FIRE ALARM BOX
		WHEELCHAIR RAMP

LEGEND

	CONSTRUCTION FENCE
	DIRECTION OF TRAFFIC FLOW
	REFLECTORIZED PLASTIC DRUM
	TWO-WAY PEDESTRIAN DETOUR
	POLICE DETAIL

ABBREVIATIONS

APPROX	APPROXIMATE
CEM	CEMENT
CONC	CONCRETE
EXIST	EXISTING
HMA	HOT MIX ASPHALT
MAX	MAXIMUM
MIN	MINIMUM
PROP	PROPOSED
R&R	REMOVE & RESET
Typ	TYPICAL
VGC	VERTICAL GRANITE CURB
WCR	WHEELCHAIR RAMP

PROJECT TITLE

1021 & 1025
Massachusetts Ave
Construction
Management Plan

Arlington,
Massachusetts

PREPARED FOR

1025 Mass Ave, LLC

Woburn,
Massachusetts



35 N.E. BUSINESS CENTER DRIVE
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TEL: (978) 474-8800
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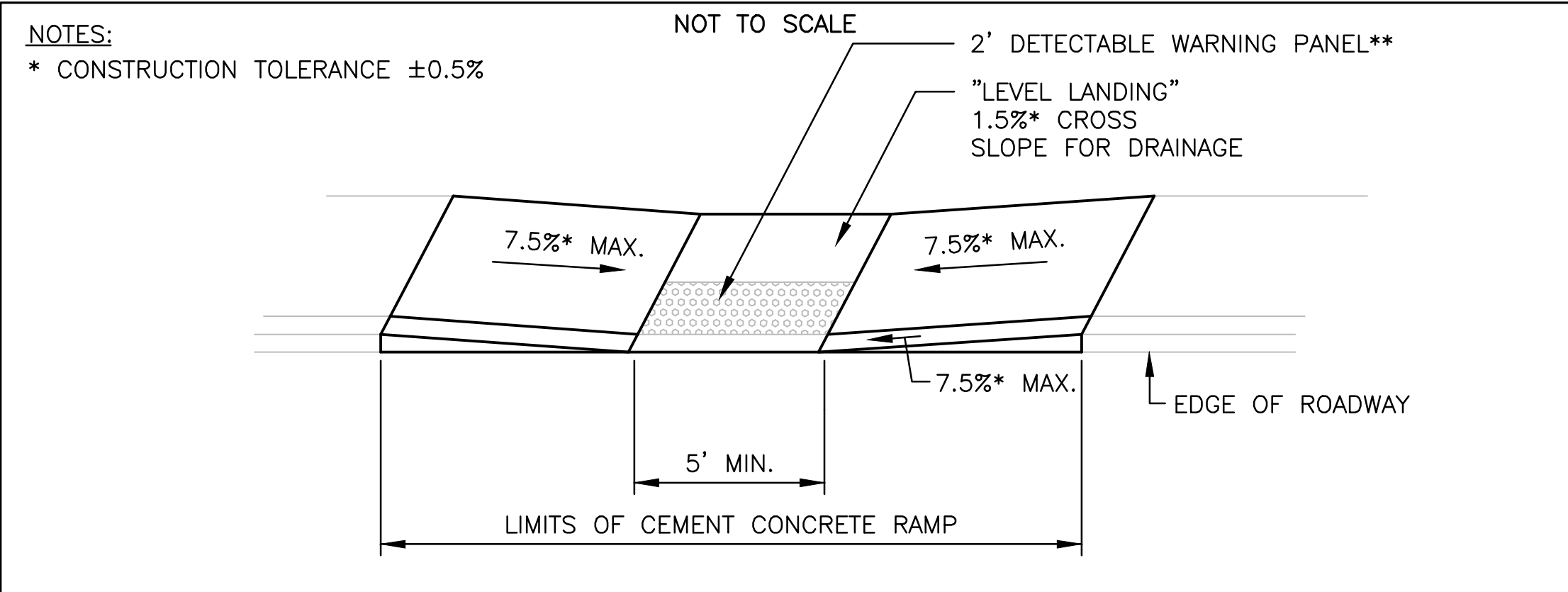
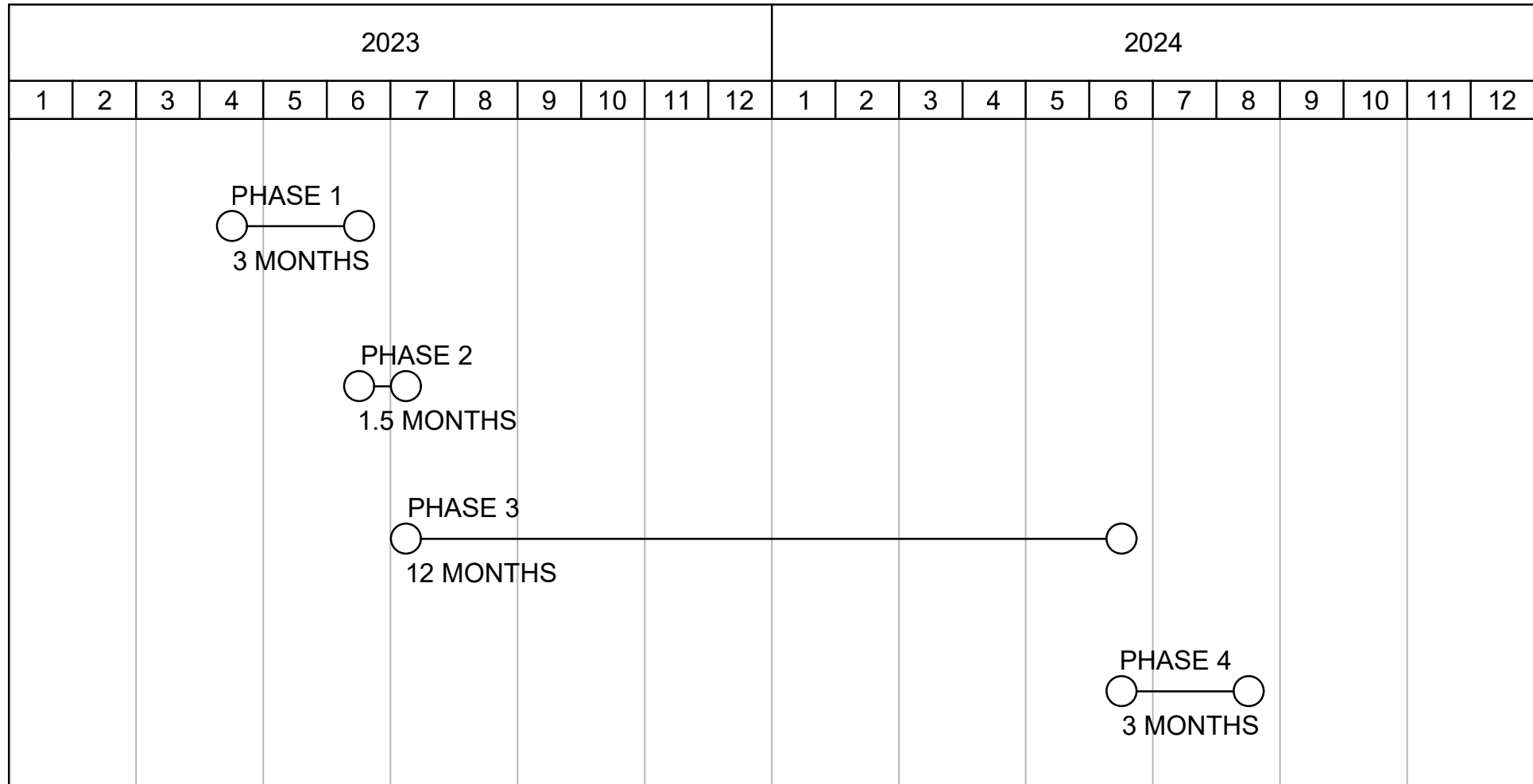
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General Notes &
Legend

SHEET 2 OF 10	DRAWING NUMBER
JOB NO. 9658	2
CAD 965805	

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BAR SCHEDULE



WHEELCHAIR RAMP ON NARROW SIDEWALK

IDENTIF- ICATION NUMBER	SIZE OF SIGN (INCHES)		UNIT AREA SF	TEXT	TEXT DIMENSIONS	COLOR			POST SIZE AND NUMBER REQUIRED PER SIGN
	WIDTH	HEIGHT				BACK- GROUND	LEGEND	BORDER	
R1-1	30"	30"	5.18		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	RED	WHITE	WHITE	MOUNT ON TEMP FENCE
R3-2	24"	24"	4.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	WHITE	BLACK/ RED	BLACK	MOUNT BELOW R1-1
R3-17	30"	30"	6.25		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	WHITE	BLACK	BLACK	P-5 1
R3-17bP	24"	12"	2.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	WHITE	BLACK	BLACK	MOUNT BELOW R3-17
R4-11	30"	30"	6.25		SEE FHWA STANDARD HIGHWAY SIGNS 2012 SUPPLEMENT	WHITE	BLACK	BLACK	P-5 1
R7-1L	12"	18"	1.50		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	WHITE	RED	RED	P-5 1
R7-1R	12"	18"	1.50		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	WHITE	RED	RED	P-5 1
R9-9	24"	12"	2.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	WHITE	BLACK	BLACK	MOUNT ON BARRICADE
R9-11aL	24"	12"	2.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	WHITE	BLACK	BLACK	MOUNT ON TEMP STAND
R9-11R	24"	12"	2.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	WHITE	BLACK	BLACK	MOUNT ON TEMP STAND
R11-2e	24"	12"	2.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	WHITE	BLACK	BLACK	MOUNT ON TEMP STAND
W5-1	36"	36"	9.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	FLUOR- ESCENT ORANGE	BLACK	BLACK	P-5 1
W11-2	36"	36"	9.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	FLUOR- ESCENT ORANGE	BLACK	BLACK	P-5 1
W16-7PL	24"	12"	2.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	FLUOR- ESCENT ORANGE	BLACK	BLACK	MOUNT BELOW W11-2
W20-4	36"	36"	9.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	FLUOR- ESCENT ORANGE	BLACK	BLACK	P-5 1
MA-W20-7b	36"	36"	9.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	FLUOR- ESCENT ORANGE	BLACK	BLACK	P-5 1
W21-5C	36"	36"	9.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	FLUOR- ESCENT ORANGE	BLACK	BLACK	P-5 1
SP-1	36"	36"	9.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	FLUOR- ESCENT ORANGE	BLACK	BLACK	P-5 1
SP-2	24"	12"	2.00		SEE FHWA STANDARD HIGHWAY SIGNS 2004 EDITION	WHITE	BLACK	BLACK	MOUNT BELOW R9-11aL

PROJECT TITLE

1021 & 1025
Massachusetts Ave
Construction
Management Plan

Arlington,
Massachusetts

PREPARED FOR

1025 Mass Ave, LLC

Woburn,
Massachusetts

VA Vanasse &
Associates inc
Transportation Engineers & Planners

35 N.E. BUSINESS CENTER DRIVE
ANDOVER, MA 01810-1071
TEL: (978) 474-8800
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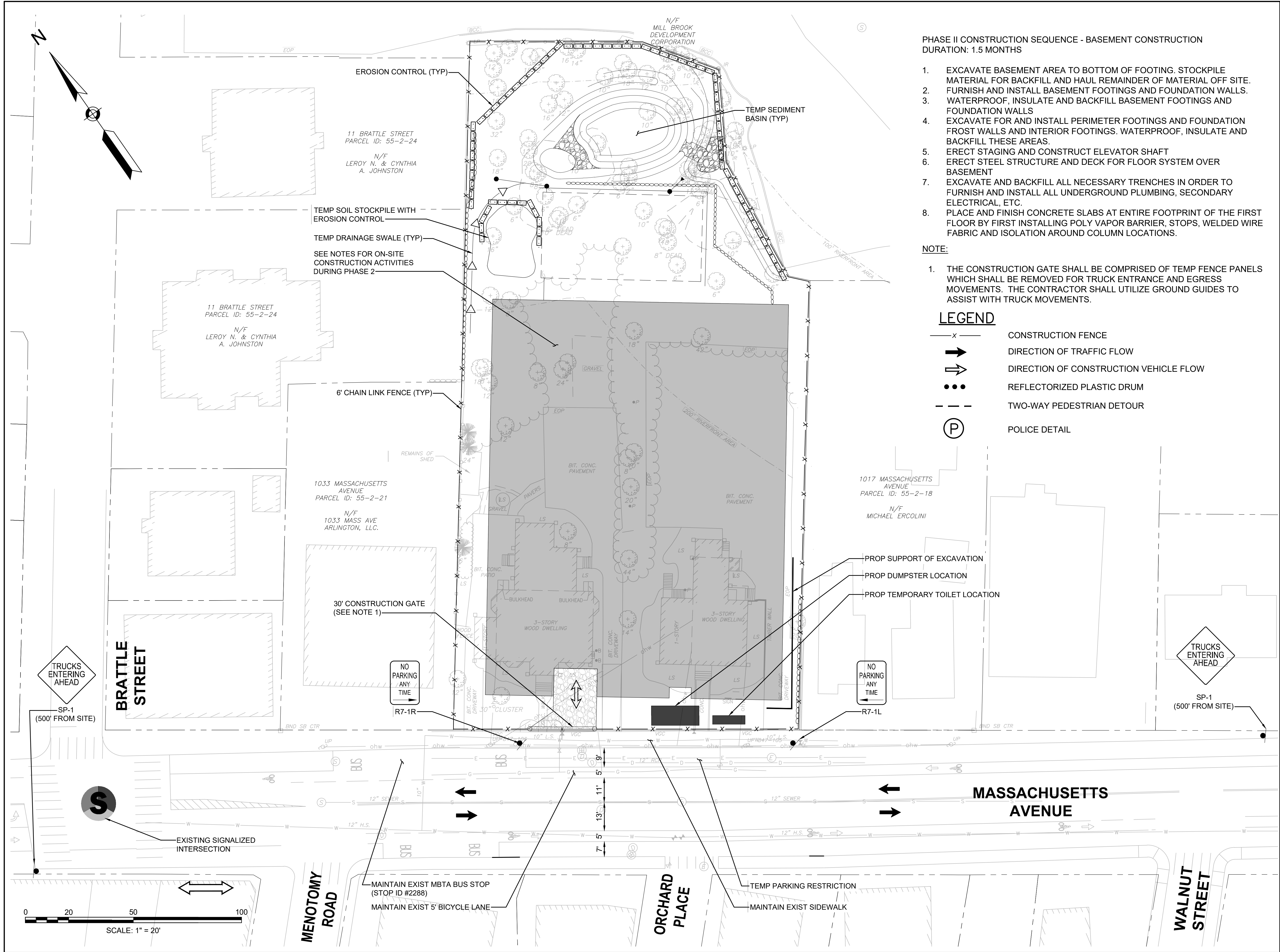
Construction Details,
Schedule & Sign
Summary

SHEET 3 OF 10	DRAWING NUMBER
JOB NO. 9658	3
CAD 9658DS	

311 of 317

SHEET 4 OF 10	DRAWING NUMBER
JOB NO. 9658	4
CAD 9658CMP - 1	

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PROJECT TITLE

1021 & 1025
Massachusetts Ave
Construction
Management Plan

Arlington,
Massachusetts

PREPARED FOR

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Woburn,
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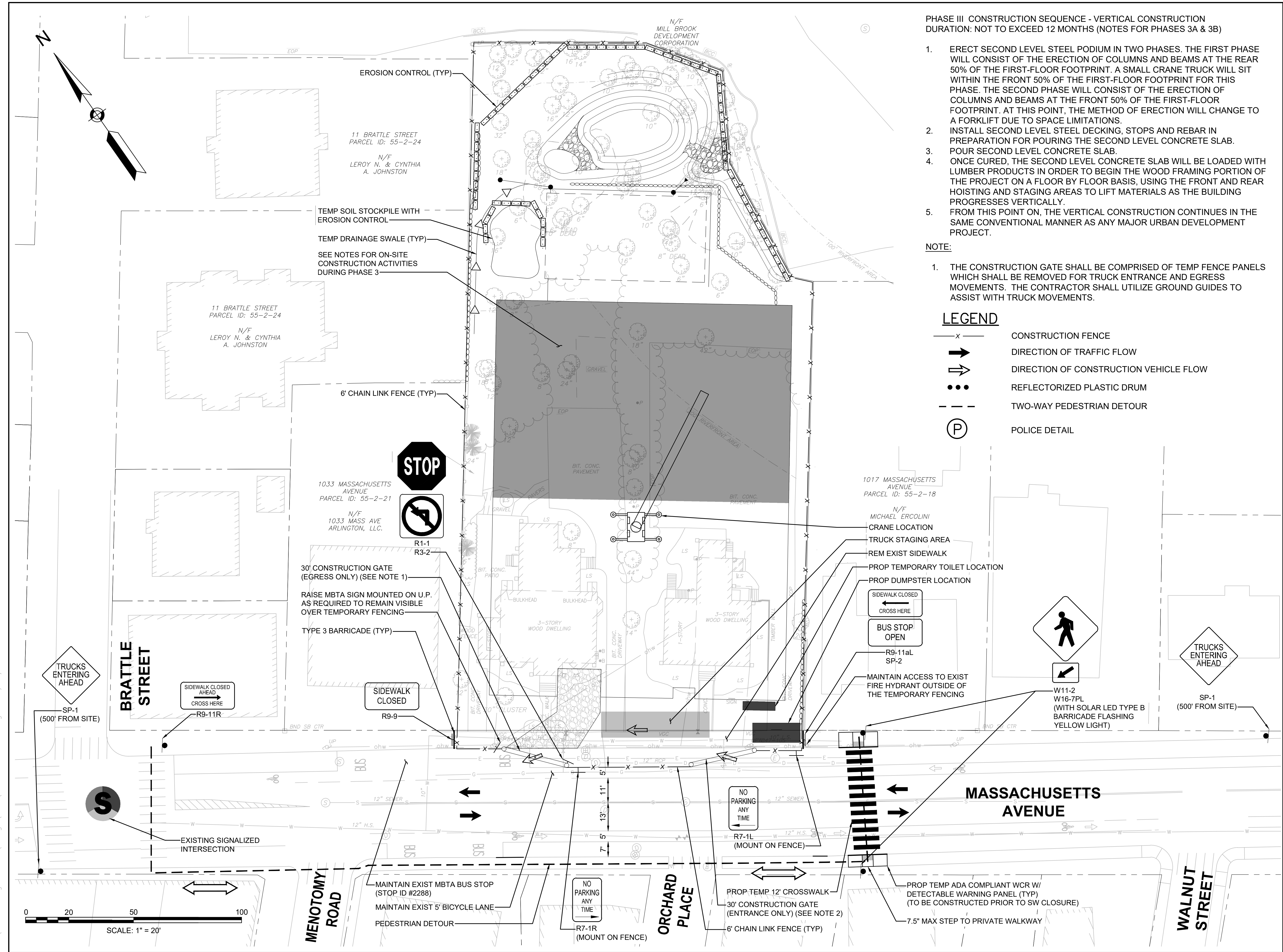
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DRAWING TITLE

Phase 2

SHEET 5 OF 10	DRAWING NUMBER
JOB NO. 9658	5
CAD 9658CMP - 2	

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PHASE III CONSTRUCTION SEQUENCE - VERTICAL CONSTRUCTION
DURATION: NOT TO EXCEED 12 MONTHS (NOTES FOR PHASES 3A & 3B)

1. ERECT SECOND LEVEL STEEL PODIUM IN TWO PHASES. THE FIRST PHASE WILL CONSIST OF THE ERECTION OF COLUMNS AND BEAMS AT THE REAR 50% OF THE FIRST-FLOOR FOOTPRINT. A SMALL CRANE TRUCK WILL SIT WITHIN THE FRONT 50% OF THE FIRST-FLOOR FOOTPRINT FOR THIS PHASE. THE SECOND PHASE WILL CONSIST OF THE ERECTION OF COLUMNS AND BEAMS AT THE FRONT 50% OF THE FIRST-FLOOR FOOTPRINT. AT THIS POINT, THE METHOD OF ERECTION WILL CHANGE TO A FORKLIFT DUE TO SPACE LIMITATIONS.
2. INSTALL SECOND LEVEL STEEL DECKING, STOPS AND REBAR IN PREPARATION FOR POURING THE SECOND LEVEL CONCRETE SLAB.
3. POUR SECOND LEVEL CONCRETE SLAB.
4. ONCE CURED, THE SECOND LEVEL CONCRETE SLAB WILL BE LOADED WITH LUMBER PRODUCTS IN ORDER TO BEGIN THE WOOD FRAMING PORTION OF THE PROJECT ON A FLOOR BY FLOOR BASIS, USING THE FRONT AND REAR HOISTING AND STAGING AREAS TO LIFT MATERIALS AS THE BUILDING PROGRESSES VERTICALLY.
5. FROM THIS POINT ON, THE VERTICAL CONSTRUCTION CONTINUES IN THE SAME CONVENTIONAL MANNER AS ANY MAJOR URBAN DEVELOPMENT PROJECT.

NOTE:
1. THE CONSTRUCTION GATE SHALL BE COMPRISED OF TEMP FENCE PANELS WHICH SHALL BE REMOVED FOR TRUCK ENTRANCE AND EGRESS MOVEMENTS. THE CONTRACTOR SHALL UTILIZE GROUND GUIDES TO ASSIST WITH TRUCK MOVEMENTS.

LEGEND

- x CONSTRUCTION FENCE
- ➔ DIRECTION OF TRAFFIC FLOW
- ➔ DIRECTION OF CONSTRUCTION VEHICLE FLOW
- ... REFLECTORIZED PLASTIC DRUM
- - - TWO-WAY PEDESTRIAN DETOUR
- (P) POLICE DETAIL

PROJECT TITLE

1021 & 1025
Massachusetts Ave
Construction
Management Plan

Arlington,
Massachusetts

PREPARED FOR

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Woburn,
Massachusetts



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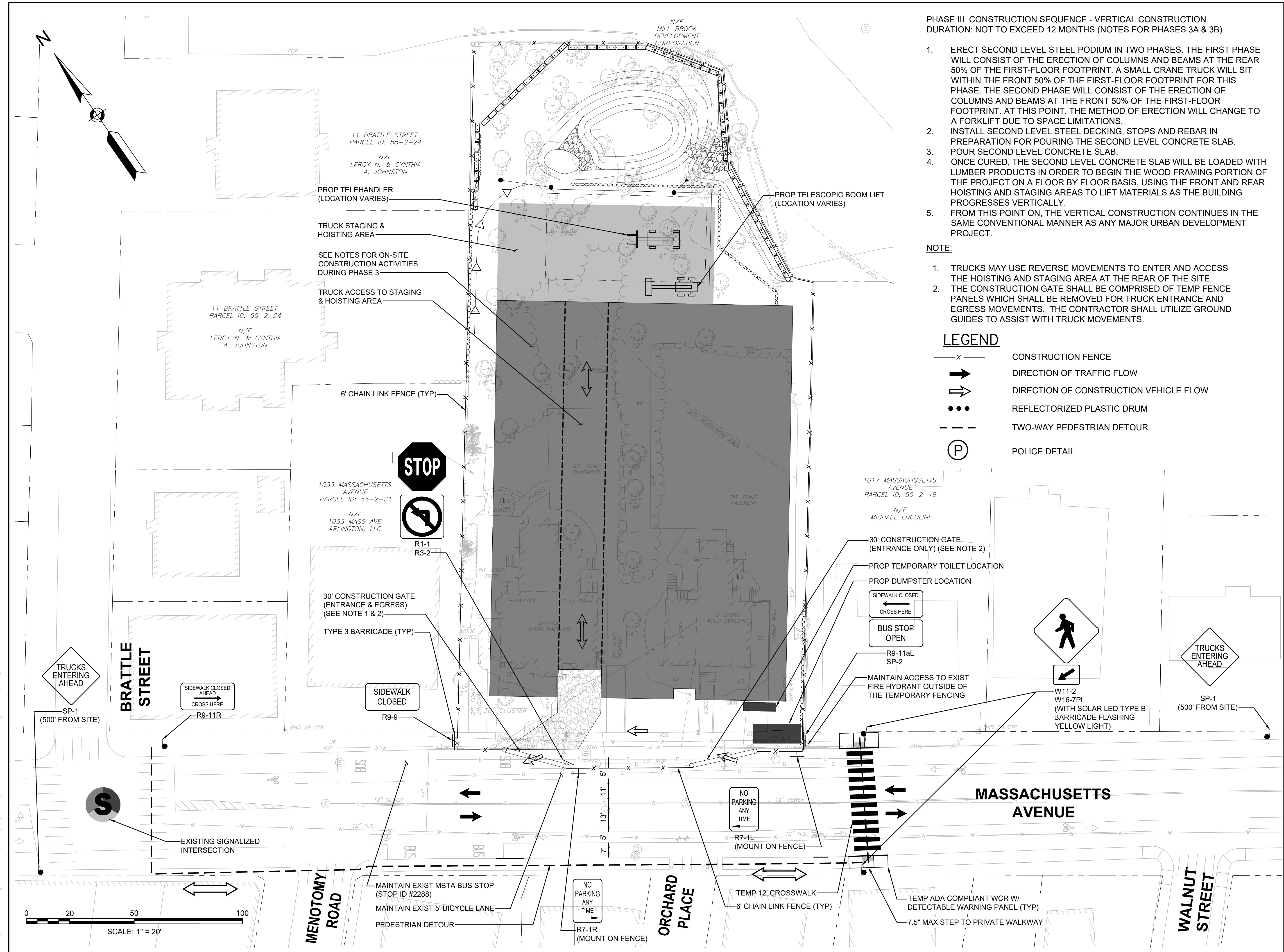
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DRAWING TITLE

Phase 3A

SHEET 6 OF 10	DRAWING NUMBER
JOB NO. 9658	6
CAD 9658CMP - 3A	

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PHASE III CONSTRUCTION SEQUENCE - VERTICAL CONSTRUCTION
DURATION: NOT TO EXCEED 12 MONTHS (NOTES FOR PHASES 3A & 3B)

1. ERECT SECOND LEVEL STEEL PODIUM IN TWO PHASES. THE FIRST PHASE WILL CONSIST OF THE ERECTION OF COLUMNS AND BEAMS AT THE REAR 50% OF THE FIRST-FLOOR FOOTPRINT. A SMALL CRANE TRUCK WILL SIT WITHIN THE FRONT 50% OF THE FIRST-FLOOR FOOTPRINT FOR THIS PHASE. THE SECOND PHASE WILL CONSIST OF THE ERECTION OF COLUMNS AND BEAMS AT THE FRONT 50% OF THE FIRST-FLOOR FOOTPRINT. AT THIS POINT, THE METHOD OF ERECTION WILL CHANGE TO A FORKLIFT DUE TO SPACE LIMITATIONS.
2. INSTALL SECOND LEVEL STEEL DECKING, STOPS AND REBAR IN PREPARATION FOR POURING THE SECOND LEVEL CONCRETE SLAB.
3. POUR SECOND LEVEL CONCRETE SLAB.
4. ONCE CURED, THE SECOND LEVEL CONCRETE SLAB WILL BE LOADED WITH LUMBER PRODUCTS IN ORDER TO BEGIN THE WOOD FRAMING PORTION OF THE PROJECT ON A FLOOR BY FLOOR BASIS, USING THE FRONT AND REAR HOISTING AND STAGING AREAS TO LIFT MATERIALS AS THE BUILDING PROGRESSES VERTICALLY.
5. FROM THIS POINT ON, THE VERTICAL CONSTRUCTION CONTINUES IN THE SAME CONVENTIONAL MANNER AS ANY MAJOR URBAN DEVELOPMENT PROJECT.

NOTE:

1. TRUCKS MAY USE REVERSE MOVEMENTS TO ENTER AND ACCESS THE HOISTING AND STAGING AREA AT THE REAR OF THE SITE.
2. THE CONSTRUCTION GATE SHALL BE COMPRISED OF TEMP FENCE PANELS WHICH SHALL BE REMOVED FOR TRUCK ENTRANCE AND EGRESS MOVEMENTS. THE CONTRACTOR SHALL UTILIZE GROUND GUIDES TO ASSIST WITH TRUCK MOVEMENTS.

LEGEND

- x — CONSTRUCTION FENCE
- ➔ DIRECTION OF TRAFFIC FLOW
- ➔ DIRECTION OF CONSTRUCTION VEHICLE FLOW
- ... REFLECTORIZED PLASTIC DRUM
- - - TWO-WAY PEDESTRIAN DETOUR
- (P) POLICE DETAIL

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Phase 3B

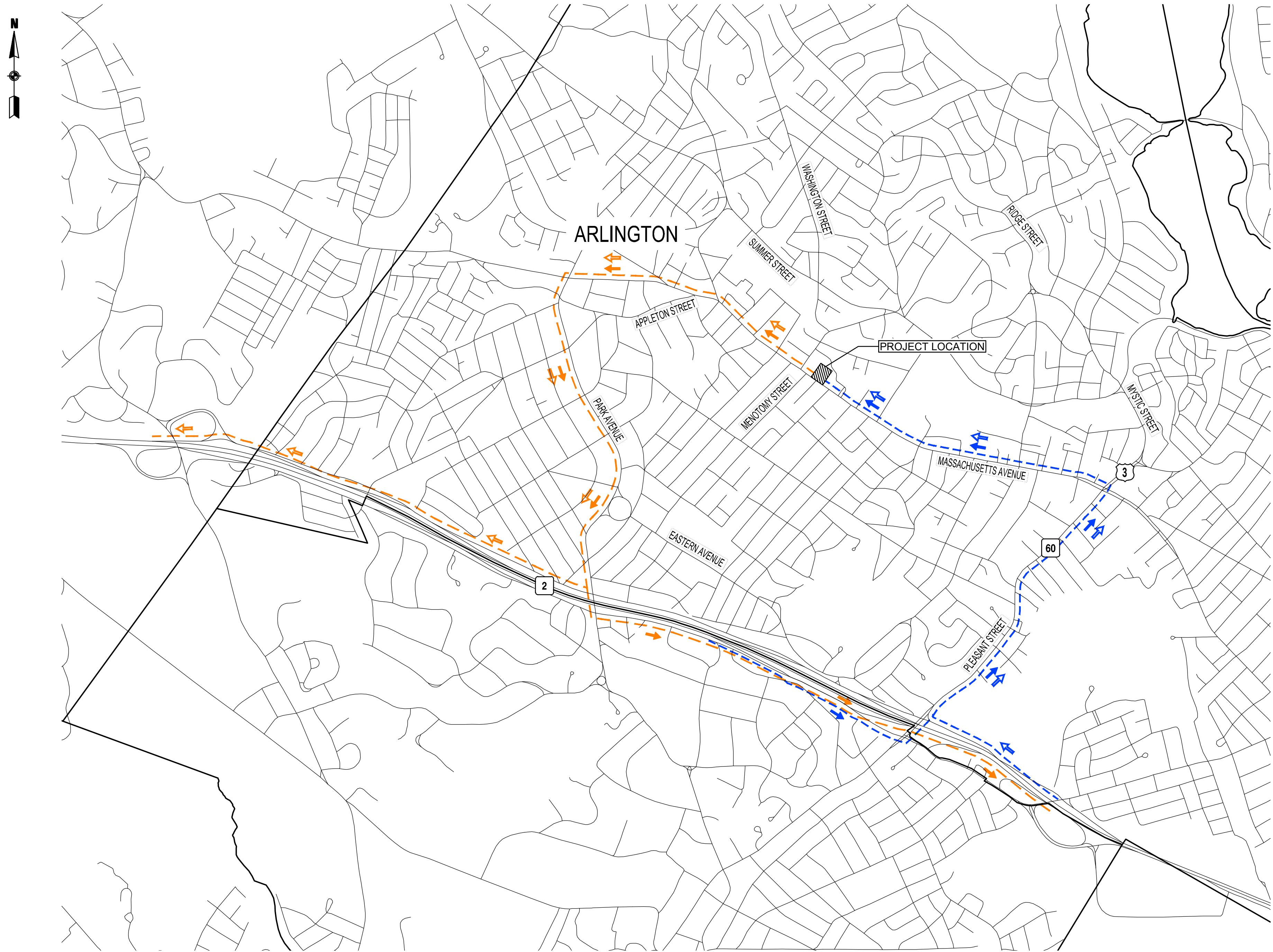
SHEET 7 OF 10	DRAWING NUMBER
JOB NO. 9658	7
CAD 9658CMP - 3B	

315 of 317

SHEET 8 OF 10	DRAWING NUMBER
JOB NO. 9658	8
CAD 9658CMP - 4	

	CONSTRUCTION FENCE
	DIRECTION OF TRAFFIC FLOW
	DIRECTION OF CONSTRUCTION VEHICLE FLOW
	REFLECTORIZED PLASTIC DRUM
	TWO-WAY PEDESTRIAN DETOUR
	POLICE DETAIL

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LEGEND

- TRUCKS ENTERING FROM ROUTE 2 WB
- TRUCKS EXITING TO ROUTE 2 WB
- TRUCKS ENTERING FROM ROUTE 2 EB
- TRUCKS EXITING TO ROUTE 2 EB

NOTES

1. TRUCK ROUTE – TRUCKS SHALL ACCESS THE SITE VIA PLEASANT STREET TO MASSACHUSETTS AVENUE. TRUCKS SHALL EGRESS THE SITE VIA MASSACHUSETTS AVENUE TO PARK AVENUE.

PROJECT TITLE

1021 & 1025
Massachusetts Ave
Construction
Management Plan

Arlington,
Massachusetts

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DRAWING TITLE

Truck Routing Plan

SHEET 10 OF 10	DRAWING NUMBER
JOB NO. 9658	10
CAD 9658RTE	